

1 STATE OF TENNESSEE
2 DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
3 BOARD OF BOILER RULES
4
5
6
7

8 QUARTERLY MEETING OF THE
9 STATE OF TENNESSEE
10 BOARD OF BOILER RULES

11 December 12, 2018
12
13
14
15
16
17
18
19
20
21

22 -----
23 CASSANDRA M. BEILING LCR# 371
24 STONE & GEORGE COURT REPORTING
25 2020 Fieldstone Parkway
Suite 900 - PMB 234
Franklin, Tennessee 37069
615.221.1089

ORIGINAL

Page 2

1 APPEARANCES:
 2 Brian Morelock, Chairman
 Owner-User Representative
 3
 4 David W. Baughman
 Owner/User Representative
 5 Allied Boiler & Supply, Inc.
 4006 River Lane
 6 Milton, Tennessee 37118
 7
 Harold F. Bowers
 8 Insurance Representative
 Centerville, Tennessee
 9
 10 Terry Fox
 Boilermaker Representative
 Chattanooga, Tennessee
 11
 12 Dr. S. Keith Hargrove
 Mechanical Engineer Representative
 Goodlettsville, Tennessee
 13
 14 Sam Chapman, Chief Boiler Inspector
 15
 Chris O'Guin, Deputy Boiler Inspector
 16
 17 Kim Y. Jefferson, Esq.
 Assistant Commissioner, State of Tennessee
 18
 19 Daniel Bailey, Esq.
 Legal Counsel, State of Tennessee
 20
 21 Ebony Paige
 Assistant Board Secretary
 22
 23
 24 ** Reporter's Note: All names are spelled
 phonetically unless otherwise provided to the
 Reporter by the parties.
 25

Page 4

1 * * * * *
 2 CHAIRMAN MORELOCK: Good morning,
 3 everyone. We are very thankful that you have
 4 survived the earthquake and the snow and
 5 everything to get here. So we want to welcome you
 6 to the December Tennessee Board of Boiler Rules
 7 meeting.
 8 I am going to call this meeting to
 9 order. And if you don't have an agenda, they are
 10 on the back table, so please make those available
 11 to yourself if you would like one.
 12 So I think everybody is in place now
 13 so we will begin with introductions and
 14 announcements. And so, first of all, the first
 15 announcement would be a safety item. In the event
 16 that we have an emergency or a natural disaster,
 17 security personnel will take us to a safe place
 18 either inside the building or they'll direct us to
 19 exit the building on the Rosa Parks side.
 20 I would also ask, out of respect for
 21 the presenters and the people in the audience that
 22 would want to participate in the discussions that
 23 you would silence your cell phones. Put them on
 24 vibrate or silent.
 25 And so then with that, I will begin

Page 3
PAGE

I N D E X

1 18-08 East Tennessee State University
 2
 3 18-10 Valero Memphis Refinery
 4
 5 18-11 Wacker Polysilicon
 6
 7 18-12 Maury Regional Medical Center
 8
 9 18-13 Fort Sanders Regional Medical
 10
 11 18-14 Lucite International
 12
 13 18-15 Claiborne Medical Center
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25

A G E N D A

I. Call Meeting to Order
 II. Introductions and Announcements
 III. Adoption of the Agenda
 IV. Approval of the September 19, 2018 Meeting
 Minutes
 V. Chief Boiler Inspector's Report
 VI. Variance Report
 VII. Old Business
 18-08 East Tennessee State University
 VIII. New Business
 18-10 Valero Memphis Refinery
 18-11 Wacker Polysilicon
 18-12 Maury Regional Medical Center
 18-13 Fort Sanders Regional Medical Center
 18-14 Lucite International
 18-15 Claiborne Medical Center
 IX. Open Discussion Items
 Tentative Meeting Dates for 2019
 X. Announcement of Next Meeting
 Wednesday, March 13, 2019
 XI. Adjournment

Page 5

1 with Cassandra and we'll do introductions.
 2 THE REPORTER: Cassandra Beiling,
 3 Stone & George Court Reporting.
 4 MS. PAIGE: Ebony Paige, Assistant
 5 Board Secretary.
 6 MR. O'GUIN: Chris O'Guin, Deputy
 7 Boiler Inspector.
 8 MR. CHAPMAN: Sam Chapman, Chief
 9 Inspector.
 10 MR. BAUGHMAN: Dave Baughman,
 11 Boiler Rules Board Member.
 12 CHAIRMAN MORELOCK: Brian Morelock,
 13 Board Member.
 14 MR. BOWERS: Harold Bowers, Board
 15 Member.
 16 DR. HARGROVE: Keith Hargrove,
 17 Board Member.
 18 MR. FOX: Terry Fox, Board Member.
 19 MS. JEFFERSON: Kim Jefferson,
 20 Assistant Commissioner.
 21 MR. BAILEY: Dan Bailey, legal
 22 counsel.
 23 MR. ROBINSON: Eugene Robinson,
 24 Cincinnati Insurance.
 25 MR. TOTH: Marty Toth,

<p style="text-align: right;">Page 6</p> <p>1 ECS Consulting and the Boisco Training Group. 2 MR. DEATON: Julius Deaton, Fort 3 Sanders Regional Medical Center. 4 MR. SWANSON: James Swanson, 5 Ft. Sanders Regional Medical Center. 6 MR. CAMPBELL: Mike Campbell, 7 Claiborne Medical Center. 8 MR. YEARY: Larry Yeary, Claiborne 9 Medical Center. 10 MR. CORVIN: Paul Corvin, Maury 11 Regional Medical Center, and my wife, Wanda. 12 MR. NEVILLE: James Neville, 13 Neville Engineering. 14 MR. RYAN: Mike Ryan, Deputy Boiler 15 Inspector. 16 MS. RHONE: Deborah Rhone, Boiler 17 Office Supervisor. 18 MR. BAUM: Scott Baum, Hartford 19 Steam Boiler. 20 MS. KIRBY: Lynn Kirby, Department 21 of Labor and Workforce. 22 MR. LOGGINS: Patrick R. Loggins, 23 University of Tennessee, supervisor of the boiler 24 operation. 25 MS. BARNETT: Doris Barnett,</p>	<p style="text-align: right;">Page 7</p> <p>1 Department of Labor. 2 MR. GOLDEN: James Golden, 3 StoneCrest Medical Center. 4 MR. KELLEY: Greg Kelley, Boiler 5 Supply Company. 6 MR. GROSS: Jeremy Gross, chief 7 inspector at the Valero Memphis Refinery. 8 MR. JOSHI: Fracad Joshi, Wacker, 9 Charleston. 10 MR. SHIELDS: Scott Shields, Toyota 11 Production Engineering. 12 MR. HIPPI: Jeremy Hipp, Wacker 13 Polysilicon. 14 MR. ENG: Richard Eng, Wacker 15 Chemical Corp. 16 CHAIRMAN MORELOCK: Thank you. 17 There will also be an attendance sheet that will 18 be sent around, so please make sure you sign in on 19 that as well. 20 Continuing on with announcements, 21 Assistant Commissioner Jefferson and Sam Chapman 22 and myself, along with some other folks from the 23 boiler unit, back in October, we attended the 24 Sunset hearing. 25 And do you want me to report the</p>
<p style="text-align: right;">Page 8</p> <p>1 results? 2 MS. JEFFERSON: Yes. 3 CHAIRMAN MORELOCK: Okay. It's 4 great news. I didn't want to take it away. But 5 we are very pleased that there was a finding on 6 the Board, but we've addressed that finding -- or 7 an observation, I guess, more so than a finding. 8 But anyway, with that said, the subcommittee did 9 vote to allow us to continue for another four 10 years. 11 And I thought that was very 12 interesting, because typically, it's a three-year, 13 so we were very thankful for that. And so thanks 14 to everybody that all of you-all made this happen. 15 So it wasn't just one individual. So we 16 appreciate the teamwork and the hard effort to 17 successfully complete that process. 18 Another announcement -- is Doris 19 going to make her presentation? 20 MS. JEFFERSON: Yes. Open 21 discussion, maybe? 22 CHAIRMAN MORELOCK: Okay. All 23 right. We'll have a presentation during the 24 discussion items, so we'll move that to that. 25 Just a little bit of information for</p>	<p style="text-align: right;">Page 9</p> <p>1 the board members. Typically, we have, in the 2 past, signed conflict of interest forms at the 3 December meetings, but we've been asked to sign 4 those forms in the current year. So we will move 5 that out to the March meeting, that we'll sign 6 conflict of interest forms. 7 Are there any other announcements 8 that we need to make during this time? 9 (No verbal response.) 10 CHAIRMAN MORELOCK: Okay. Moving 11 on to Item 3, which is Adoption of the Agenda, 12 does anyone have any additions or deletions or 13 changes to the agenda before we vote on it? 14 MS. JEFFERSON: The only item is, 15 for open discussion, we'll add Doris Barnett. 16 CHAIRMAN MORELOCK: Yes. So we 17 will add Doris Barnett to the discussion items. 18 MR. TOTH: Mr. Chairman? 19 CHAIRMAN MORELOCK: Yes? 20 MR. TOTH: Lucite, Item 18-14 -- 21 CHAIRMAN MORELOCK: Yes. 22 MR. TOTH: -- has decided -- has 23 requested to be tabled until the March 2019 24 meeting, please. 25 CHAIRMAN MORELOCK: Okay. Thank</p>

<p style="text-align: right;">Page 10</p> <p>1 you, Mr. Toth. And Mr. Toth was gracious enough 2 to send us an email on November 26th to let us 3 know that that would be moved to the March agenda. 4 So, so noted on that item, that that will be 5 removed from our December agenda and added to the 6 March 2019 agenda.</p> <p>7 We do have another item under 8 Section 7 for old business. This item was tabled 9 at the September 19th meeting and moved to the 10 December meeting. However, due to weather 11 conditions in East Tennessee, ETSU contacted the 12 chief inspector and said they would be unable to 13 make it. So we will move their item, which is 14 18-08, that will be moved to the March 13th 15 meeting. Are there any additional changes or 16 comments about the agenda?</p> <p>17 MR. NEVILLE: The UT Health 18 Science, has that been distributed, a variance 19 request for UT Health Science?</p> <p>20 CHAIRMAN MORELOCK: That item was 21 not placed on our agenda. The board members have 22 not reviewed the manuals.</p> <p>23 MR. NEVILLE: I understand.</p> <p>24 CHAIRMAN MORELOCK: We've not 25 received the manuals, so what we need to do is</p>	<p style="text-align: right;">Page 11</p> <p>1 just put that on the March agenda as well. Okay? 2 MR. NEVILLE: Very well. 3 CHAIRMAN MORELOCK: So thank you. 4 And it will need an item number assigned to it as 5 well. 6 Anything else? 7 (No verbal response.) 8 CHAIRMAN MORELOCK: All right. 9 Hearing none, do I have a motion to accept the 10 modified agenda? 11 MR. FOX: I'll make a motion to 12 accept. 13 CHAIRMAN MORELOCK: Do I have a 14 second? 15 MR. BOWERS: Second. 16 CHAIRMAN MORELOCK: Any discussion? 17 (No verbal response.) 18 CHAIRMAN MORELOCK: Hearing none, 19 all in favor say "aye." 20 (Affirmative response.) 21 CHAIRMAN MORELOCK: Any negatives? 22 Abstentions? Not voting? 23 (No verbal response.) 24 CHAIRMAN MORELOCK: Okay. So we 25 have an approved agenda. So thank you.</p>
<p style="text-align: right;">Page 12</p> <p>1 Moving on to Item 4, which is 2 approval of the September 19th meeting minutes. 3 And that will also include the approval of the 4 August 8th meeting minutes due to what we 5 discussed at the September -- the August minutes 6 were not ready for review, so we voted, in 7 September that the August and September minutes 8 would be voted at the same time. So I hope you've 9 had an opportunity to look at those minutes. Are 10 there any comments about those minutes? 11 (No verbal response.) 12 CHAIRMAN MORELOCK: I just want to 13 say to all of our court reporters, it's a huge 14 task to get everything we say transcribed into 15 writing. And the only thing I have -- everything 16 is transcribed -- you know, the only thing we 17 could say is there may be some items that maybe 18 need to be capitalized, but the content is on 19 track. I will say, since I am from East 20 Tennessee, sometimes we're hard to understand, so 21 when you look at the September minutes, on 22 page 54, there was a term in the September minutes 23 called "Newson strips." But it really should be a 24 "nuisance trip." So we apologize from East 25 Tennessee. We'll try to enunciate better.</p>	<p style="text-align: right;">Page 13</p> <p>1 Is there anything else? Do I have a 2 motion to accept the August and the September 3 meeting minutes? 4 MR. BAUGHMAN: Motion to accept. 5 CHAIRMAN MORELOCK: All right. Do 6 I have a second? 7 DR. HARGROVE: Second. 8 CHAIRMAN MORELOCK: All right. Any 9 more comments or discussion? 10 (No verbal response.) 11 CHAIRMAN MORELOCK: All right. 12 Those in favor of approval of the August and the 13 September minutes, say "aye." 14 (Affirmative response.) 15 CHAIRMAN MORELOCK: Any opposition, 16 negative votes? 17 (No verbal response.) 18 CHAIRMAN MORELOCK: Any 19 abstentions? Not voting? 20 (No verbal response.) 21 CHAIRMAN MORELOCK: We have 22 approved minutes for August and September, so 23 thank you for that. 24 Moving on to Item 5, which will be 25 our chief inspector's report, so I will turn this</p>

<p style="text-align: right;">Page 14</p> <p>1 over to Chief Inspector Sam Chapman. 2 MR. CHAPMAN: Thanks. Okay. 3 Number of inspections by state inspectors is 4 2,775; insurance inspectors, 5,375; giving us a 5 total of 8,150. Total delinquent number of 6 vessels, 70,135; state inspectors 1,341; insurance 7 inspector is 539; giving us a total delinquent of 8 1,880. 9 Number of code violations found was 10 31. Uncorrected code violations is one. 11 Variance report will be performed by 12 Chris O'Guin. This report was from July through 13 September of 2018. 14 CHAIRMAN MORELOCK: Okay. 15 MR. CHAPMAN: Thank you. 16 CHAIRMAN MORELOCK: Any questions 17 of Chief Chapman's report? 18 (No verbal response.) 19 CHAIRMAN MORELOCK: Okay. I'll 20 turn it over to Assistant Chief Inspector Chris 21 O'Guin. 22 MR. O'GUIN: As of today, we have 23 115 known variances; 8 require a follow-up 24 inspection; 56 are active; 11 require a 25 reinspection; and 40 are dormant.</p>	<p style="text-align: right;">Page 15</p> <p>1 This quarter we have completed four 2 variance audits with three approved. Tennova 3 Healthcare of Clarksville was approved; J.M. Huber 4 was approved; John Manville was approved. 5 Cookeville Regional Medical failed due to lack of 6 training. And that's it on the variance report. 7 CHAIRMAN MORELOCK: Okay. Any 8 questions about Mr. O'Guin's variance report? 9 (No verbal response.) 10 CHAIRMAN MORELOCK: Okay. Thank 11 you, gentlemen. 12 That will take care of Items 5 and 6. 13 That will take us to Item 7, which is old 14 business, and that's the East Tennessee State 15 University. And since they are not here and 16 requested to move that to the March agenda, the 17 only comment I would make on this item is that, to 18 the board members who have reviewed that manual 19 and have comments, I think it would be very 20 efficient if we would go ahead and send those 21 comments to East Tennessee so that they can 22 consider those to update their manual before we 23 review it in March. Okay? 24 MR. BAUGHMAN: How should we submit 25 those comments?</p>
<p style="text-align: right;">Page 16</p> <p>1 CHAIRMAN MORELOCK: I'm going to 2 submit them to the boiler unit, to Chief Inspector 3 Sam Chapman. 4 MR. BAUGHMAN: Do we need to submit 5 our own comments to you to forward on to him? 6 CHAIRMAN MORELOCK: You can copy 7 me. That way I'll have them. 8 MR. BAUGHMAN: Okay. 9 CHAIRMAN MORELOCK: Is that okay 10 with everyone. 11 (Affirmative response.) 12 CHAIRMAN MORELOCK: All right. 13 Thank you. 14 Okay. So moving on -- we have no 15 more old business, so moving on to Item 8, which 16 is new business, our first item is 18-10, which is 17 Valero Memphis Refinery, who is going to provide a 18 Risk-Based Inspection program update. 19 And I will say, while Jeremy is 20 coming to the table, when your item comes up, 21 please come up to the table here to present your 22 item. Speak clearly into the court reporter's 23 recording device so she can capture all your 24 statements. 25 And I'll turn it over to you, Jeremy.</p>	<p style="text-align: right;">Page 17</p> <p>1 MR. GROSS: All right. Good 2 morning, Board and guests. 3 Again, Jeremy Gross from the Valero 4 Memphis Refinery. I'm here today to present our 5 Risk-Based Inspection program status review. The 6 Risk-Based Inspection program continues to be 7 active at the Valero Memphis Refinery. The 8 refinery continues to maintain scheduled damage 9 mechanism-specific inspections planned and 10 executed on-stream during routine maintenance or 11 major maintenance outages. 12 The key activities related to the 13 program for 2018 are as follows: We underwent two 14 corporate assessments, Materials and Inspection 15 Network and then an HF Alkylation Unit Network. 16 Those are mechanical integrity reviews and gap 17 analysis exercises to increase the reliability of 18 our facility. 19 We also underwent an annual 20 re-validation for our Valero -- excuse me -- 21 voluntary protection program, star program. It 22 also was part of our gap analysis for mechanical 23 integrity and safety programs. 24 We also completed four re-validation 25 units for our RBI program. Our HF alkylation unit</p>

<p style="text-align: right;">Page 18</p> <p>1 was completely re-circuitized and key parameters 2 were updated.</p> <p>3 Decided to not have any scheduled 4 major maintenance outages for 2018. Extensive 5 planning efforts are ongoing for our 2019 major 6 maintenance outages.</p> <p>7 You see Table A on the next page for 8 our inspection activities completed in 2018 and 9 scheduled for 2019. The majority of the items 10 listed in 2019 will be complete in the scheduled 11 major maintenance outages.</p> <p>12 We do also have two hydro-treater 13 units that will undergo reactor catalyst 14 change-outs. We will execute other inspections at 15 that opportunity.</p> <p>16 As far as Table A, in 2018, we 17 performed 40 internal inspections and we have 205 18 planned for 2019. There's quite a bit of work 19 planned for next year. External inspections 20 completed in '18 were 159, and then we have 302 21 scheduled for 2019.</p> <p>22 CUI inspections completed in '18 were 23 21, and 20 scheduled for '19. Jurisdictional 24 inspections completed, 206, and we have 197 25 scheduled for the 2019 calendar year.</p>	<p style="text-align: right;">Page 19</p> <p>1 Evergreen activities are continuing 2 to be ongoing for our program. We are doing 3 continuous reviews of our assigned damaged 4 mechanisms and executing proper inspection 5 techniques. We're recording those inspection 6 results and grading them per the respective 7 effectiveness tables. We're scheduling the next 8 inspections per our RBI methodology.</p> <p>9 We are using nonintrusive inspection 10 techniques as well during our external 11 inspections. So not just visual inspections only 12 there; we are using NDE techniques to help with 13 corrosion monitoring or cracking mechanisms.</p> <p>14 Routine corrosion monitoring, as well 15 as specialty non-destructive testing is performed 16 when required. And we are revalidating our fluid 17 properties and operating conditions, which are 18 completed on a five-year interval.</p> <p>19 Jurisdictional inspection activities 20 on registered equipment are maintained with zero 21 delinquencies. And they are managed outside of 22 the RBI program.</p> <p>23 Process equipment is circuitized and 24 risk ranked in the RBI program. Our data 25 management software integrates design data, the</p>
<p style="text-align: right;">Page 20</p> <p>1 visual inspections, our thickness monitoring data, 2 assigned damage mechanism inspection results, and 3 our inspection scheduling are integrated in our 4 RBI module.</p> <p>5 You can see the Risk Data and 6 Distribution in the graph below, looking at our 7 circuits from the 2017 report, as well as what 8 changed from the 2018 inspection activities.</p> <p>9 Overall, 40 internals were completed, 10 159 externals, and 21 CUI were performed this year 11 in accordance with our program. Our damage 12 mechanism specific inspection activities decreased 13 risk on 96 circuits in the 2018 calendar year. We 14 are current on our jurisdictional inspections, and 15 we are also currently executing quite a bit of 16 insulation and fireproofing repairs within our 17 facility.</p> <p>18 What questions do you have for me?</p> <p>19 CHAIRMAN MORELOCK: Jeremy, since 20 we have some new board members who probably may 21 not have heard your report before --</p> <p>22 MR. GROSS: Sure.</p> <p>23 CHAIRMAN MORELOCK: -- I don't want 24 you to give a big, long presentation, but because 25 of this RBI program, how has that allowed you to</p>	<p style="text-align: right;">Page 21</p> <p>1 extend internal inspection frequencies?</p> <p>2 MR. GROSS: Yeah. It's been a big 3 key for our facility. We're the only oil refinery 4 in the state of Tennessee, in this area, actually, 5 as far as in the Southeast, until you get down in 6 the Gulf Coast. But with limited internal 7 inspection of frequencies, the RBI program is very 8 valuable to our facility from an operation 9 standpoint.</p> <p>10 We are able to extend out -- we have 11 internal inspection frequency maximums, so, you 12 know, with risk-based inspection, the State of 13 Tennessee allows us to have a maximum frequency. 14 So does our corporation. So that helps us 15 schedule our internal/external nonintrusive 16 inspections based on when damage mechanisms come 17 due, versus having to take our outages every two 18 years.</p> <p>19 So from a reliability standpoint, 20 we're able to maximize internal inspection 21 schedules, budgets, and then turnaround activity 22 on major maintenance outages in a very efficient 23 way.</p> <p>24 CHAIRMAN MORELOCK: Thank you. 25 DR. HARGROVE: Question.</p>

<p style="text-align: right;">Page 22</p> <p>1 MR. GROSS: Yes, sir?</p> <p>2 DR. HARGROVE: The increase in</p> <p>3 internal inspections from 2018 to 2019 is rather</p> <p>4 significant. Can you describe or is there any</p> <p>5 manpower or personnel requirements or changes, as</p> <p>6 required, to make that -- or increase that</p> <p>7 frequency for 2019?</p> <p>8 MR. GROSS: Yes, sir, there is. So</p> <p>9 for our major maintenance outage, I'll have 106</p> <p>10 people that will be working on inspection pass</p> <p>11 during that outage. That's a 54-day outage that</p> <p>12 we'll be executing at that time. It's got five</p> <p>13 process units that have all these inspection</p> <p>14 activities that will occur. So we'll execute</p> <p>15 those in that 54-day window.</p> <p>16 We will also maximize efforts on</p> <p>17 discovery work. So at our site, one of my</p> <p>18 policies is we complete all CML inspections</p> <p>19 12 months in advance of your major turnaround. So</p> <p>20 we limit the discovery items, maybe, by finding a</p> <p>21 nozzle that was inspected four years ago with a UT</p> <p>22 thickness, and if corrosion rates increased, we</p> <p>23 don't get an uh-oh in our outage, so we're able to</p> <p>24 forecast repairs better. However, executing the</p> <p>25 inspections, we still have to increase our</p>	<p style="text-align: right;">Page 23</p> <p>1 manpower.</p> <p>2 Current staff at my site that I</p> <p>3 manage is 28 people that do day-to-day inspection</p> <p>4 activities year around. But during major</p> <p>5 turnarounds like that, I may have staff up to</p> <p>6 between 100 to 150 people, depending on the</p> <p>7 inspections that are coming due.</p> <p>8 DR. HARGROVE: Thank you.</p> <p>9 MR. GROSS: Yes, sir.</p> <p>10 CHAIRMAN MORELOCK: Any questions</p> <p>11 or comments from the Board or from the visitors?</p> <p>12 MR. BAUGHMAN: I would like to ask</p> <p>13 Jeremy a question.</p> <p>14 Did you have any unplanned outages</p> <p>15 this year?</p> <p>16 MR. GROSS: So we had a heater that</p> <p>17 we had to do some pigging from a decoking</p> <p>18 standpoint. So yes, sir, we actually did. We</p> <p>19 brought in a company to decoke the heater. We</p> <p>20 actually had to replace some tubes at that time,</p> <p>21 and we followed, you know, the requirements by the</p> <p>22 Board. Those are Tennessee Special items, and we</p> <p>23 did R-1 code reports on those heaters -- on that</p> <p>24 in-particular heater.</p> <p>25 MR. BAUGHMAN: How did it fall</p>
<p style="text-align: right;">Page 24</p> <p>1 within the RBI program, as far as -- since it came</p> <p>2 up as an unplanned and it had repairs, how did it</p> <p>3 fall within the inspection program?</p> <p>4 MR. GROSS: So actually did what's</p> <p>5 called a smart pigging technique on that heater,</p> <p>6 as well, to gather 360-degree volumetric thickness</p> <p>7 measurements for every tube in a heater, so that</p> <p>8 goes into our data management system. We use</p> <p>9 those corrossions to help drive our next</p> <p>10 inspection.</p> <p>11 We replaced nine tubes in the heater.</p> <p>12 At that time, two of those were due to significant</p> <p>13 fouling that the pigging company could not get</p> <p>14 out, so to lower our tube skin temperature for the</p> <p>15 next production run, we were going to go ahead and</p> <p>16 cut those tubes out anyway.</p> <p>17 So that data goes in, David, and then</p> <p>18 we'll actually grade that inspection. So we did a</p> <p>19 hundred percent in effectiveness of an A-level</p> <p>20 inspection. And that helps us forecast our</p> <p>21 inspection frequency.</p> <p>22 MR. BAUGHMAN: Super. Thank you.</p> <p>23 CHAIRMAN MORELOCK: Any other</p> <p>24 questions?</p> <p>25 (No verbal response.)</p>	<p style="text-align: right;">Page 25</p> <p>1 CHAIRMAN MORELOCK: Well, again,</p> <p>2 Tennessee Code Annotated 68-122-110 dictates the</p> <p>3 inspection frequencies. It also states in there</p> <p>4 that the Board can allow those inspection</p> <p>5 frequencies to be extended. And then, recently,</p> <p>6 Subparagraph F was added for the extension of</p> <p>7 boiler internal inspection frequencies, and</p> <p>8 paragraph G was added to give the chief inspector</p> <p>9 some other latitude for variances.</p> <p>10 So what happens is, with your RBI</p> <p>11 program, you come to the Board to present your</p> <p>12 report and get approval for another year. Another</p> <p>13 option is to work through the National Board with</p> <p>14 an owner-user inspection certification and</p> <p>15 authorization, and then you can add that into your</p> <p>16 owner-user program, and then that program is</p> <p>17 audited every three years to renew that stamp. So</p> <p>18 that's our options in the state of Tennessee.</p> <p>19 Any other questions, comments?</p> <p>20 (No verbal response.)</p> <p>21 CHAIRMAN MORELOCK: Hearing none,</p> <p>22 do I have a motion to approve Valero's RBI</p> <p>23 program?</p> <p>24 MR. BAUGHMAN: Do we have any</p> <p>25 conflicts?</p>

Page 26

1 CHAIRMAN MORELOCK: Oh, thank you.
 2 Thank you.
 3 Any conflicts of interest for this
 4 item?
 5 (No verbal response.)
 6 CHAIRMAN MORELOCK: None. So do I
 7 have a motion?
 8 MR. FOX: I'll make a motion to
 9 accept the program.
 10 CHAIRMAN MORELOCK: Okay. Do I
 11 have a second?
 12 MR. BAUGHMAN: Second.
 13 CHAIRMAN MORELOCK: Thank you. Any
 14 additional comments?
 15 (No verbal response.)
 16 CHAIRMAN MORELOCK: All in favor
 17 say "aye."
 18 (Affirmative response.)
 19 CHAIRMAN MORELOCK: Opposed?
 20 (No verbal response.)
 21 CHAIRMAN MORELOCK: Abstentions,
 22 not voting?
 23 (No verbal response.)
 24 CHAIRMAN MORELOCK: You have an
 25 approved RBI program.

Page 28

1 chosen based on equipment type, materials of
 2 construction, chemical composition, and operating
 3 conditions throughout the entire facility.
 4 Today, we have conducted round three
 5 of thickness measurements in 2018. We have some
 6 attachments included with thickness measurements
 7 on 1 of 66 representative pressure vessels. And
 8 this particular attachment is a vessel that was
 9 presented earlier to the Board.
 10 The thickness measurement locations
 11 on the vessels were selected to get an overall
 12 profile, which includes the shells, the heads, the
 13 nozzles. The observed thickness measurements do
 14 not indicate any internal corrosion of
 15 significance. The data demonstrates that the
 16 equipment is operating in a noncorrosive
 17 environment.
 18 We'll continue to monitor all these
 19 vessels, going out into the future. At this
 20 point, we don't have any plans of stopping these
 21 measurements. Although the primary focus of our
 22 examination is on generalized internal corrosion,
 23 we are also proactively evaluating other potential
 24 damage mechanisms, particularly erosion, corrosion
 25 under insulation, and other damages.

Page 27

1 MR. GROSS: Thank you very much.
 2 CHAIRMAN MORELOCK: Thank you.
 3 Our next item is 18-11, which is
 4 Wacker Polysilicon. They're also going to give
 5 you an update on their RBI program.
 6 MR. ENG: Good morning, board
 7 members. Richard Eng, Wacker Chemical Corp.,
 8 Mechanical Integrity.
 9 MR. HIPPE: Jeremy Hipp, Wacker
 10 Chemical Corp., Mechanical Integrity.
 11 MR. ENG: I'm here today on behalf
 12 of Wacker Polysilicon North America to present to
 13 the Board our status of the RBI program and
 14 inspection for 2018.
 15 Just a little quick update. At the
 16 Charleston, Tennessee facility, we have
 17 implemented a risk assessment approach in
 18 conformance with API RAGAGEP and uses the Meridium
 19 APM software package to document inspection
 20 results and schedule future inspections. As
 21 earlier reported, Wacker completed initial
 22 baseline thickness measurements at strategic
 23 locations in a representative set of pressure
 24 vessels. We specified thickness measurement
 25 locations, TMLs, in 66 pressure vessels that were

Page 29

1 We will continue to update the Tennessee
 2 board members annually in December on our risk
 3 assessment and our findings.
 4 On Table 1 below, we have summarized the
 5 inspections year to date. That would be October
 6 of 2018. We have additional inspections between
 7 October and December.
 8 Internal inspections we've conducted 10;
 9 external inspections on equipment, 303; external
 10 inspections on piping 126; thickness measurements,
 11 66 vessels; and thickness measurements on piping,
 12 61 circuits, for a total of 566 for 2018.
 13 We have a plan for 2019. It's slightly
 14 more than 2018. Part of it is because we have new
 15 equipment on site, plus the age of the plant
 16 continues to get older.
 17 On the table below is our current risk
 18 ranking of our inspections. On equipment, we
 19 have, predominantly, in the low category, more
 20 than 50 percent, 1,774 out of 3,258. And these
 21 are components on equipment. In Meridium APM, the
 22 number of components are usually higher than the
 23 number of equipment because of the methodology
 24 used. An example would be a heat exchanger. It's
 25 one piece of equipment, but it has multiple

<p style="text-align: right;">Page 30</p> <p>1 components, one of which is the shell, the tube, 2 and the head. So that's why the component and the 3 equipment quantities are different.</p> <p>4 At this point, I would like to turn it 5 over to the Board for any questions on our 2018 6 inspections and our 2019 planned inspections and 7 our current risk ranking of our facility.</p> <p>8 CHAIRMAN MORELOCK: What questions 9 does the Board have?</p> <p>10 DR. HARGROVE: With regard to your 11 internal inspections and to, I guess, minimize 12 risks, what was the logic between -- with regard 13 to roughly the same amount of internal inspections 14 for 2018 to 2019?</p> <p>15 MR. ENG: In the Meridium, the 16 recommendation so far in all of our pressure 17 vessels -- it's a brand-new facility and they kick 18 out these recommendations going out 5, 10, 19 15 years, which we're not there yet. In API 510 20 and 570, which we follow currently, the inspection 21 frequency is sooner than the Meridium 22 recommendation. And we're not there yet as well.</p> <p>23 These inspections are predominantly 24 inspections that are available to us due to 25 scheduled down time, due to replacement, due to</p>	<p style="text-align: right;">Page 31</p> <p>1 other reasons. We just have an opportunity to do 2 these internal inspections.</p> <p>3 So in 2010, we have ten, maybe a few 4 more. And we anticipate similar inspections going 5 out into 2019, perhaps a few more.</p> <p>6 DR. HARGROVE: Mr. Chairman, I 7 would like to recommend that the number of 8 inspections definitely increase.</p> <p>9 You list a range, from 10 to 20. So 10 it's possible you did 10 in 2018 and it's possible 11 you could do 10 in 2019. I would suggest, with 12 regard to this type of risk-based inspection, that 13 you do at least twice that. So I would like to 14 recommend that at least 20 internal inspections 15 are done with regard to this type of inspection 16 program.</p> <p>17 MR. ENG: It's likely to exceed 18 that, but we're not sure these inspections become 19 available if the equipment doesn't go down. It is 20 still sooner than the recommendations on Meridium, 21 and it's also earlier than API 510 and API 570 22 requirements. But yes, I can take your note on 23 that and we're likely to exceed that.</p> <p>24 CHAIRMAN MORELOCK: Well, to speak 25 to Dr. Hargrove's comment and recommendation,</p>
<p style="text-align: right;">Page 32</p> <p>1 based on what Wacker is doing, since it is a new 2 facility, they did their thickness monitoring and 3 all that on brand-new equipment and put it into 4 service. They're bound by the inspection 5 requirements of Tennessee rule and law to do that 6 internal every two years.</p> <p>7 Their intent is potentially twofold. 8 One would be to deem the equipment in noncorrosive 9 service, which if they prove that through their 10 RBI program, then they can approach the boiler 11 unit and Chief Inspector Chapman and say, "We have 12 data to show that this equipment is in 13 noncorrosive service; therefore, based on 14 Tennessee Code Annotated 68-122-110, the law says, 15 in noncorrosive service, you do not have to do an 16 internal inspection. It's strictly an external 17 inspection. So that's one leg of that.</p> <p>18 The other leg of that would be if you 19 can't satisfy -- if Wacker can't satisfy that 20 requirement, then they have the option to extend 21 that two-year internal to something else that they 22 would determine through their analysis.</p> <p>23 Does that make sense?</p> <p>24 DR. HARGROVE: It does. But 25 statistically, for the organization, it just seems</p>	<p style="text-align: right;">Page 33</p> <p>1 to me --</p> <p>2 CHAIRMAN MORELOCK: With the total 3 pieces of equipment, yes.</p> <p>4 DR. HARGROVE: Yeah. Okay.</p> <p>5 CHAIRMAN MORELOCK: So, I guess, 6 from the standpoint of your program, right now 7 you're operating under the two-year internal 8 requirement, correct?</p> <p>9 MR. ENG: That's correct.</p> <p>10 CHAIRMAN MORELOCK: So when will 11 your program be fully implemented with RBI?</p> <p>12 I guess that would probably answer 13 your question better.</p> <p>14 DR. HARGROVE: Exactly.</p> <p>15 CHAIRMAN MORELOCK: Because I'm 16 certain that you're probably looking -- you've got 17 a lot more than ten pieces of equipment you're 18 doing internals on.</p> <p>19 MR. ENG: We have hundreds. Yes, 20 we do.</p> <p>21 CHAIRMAN MORELOCK: I think that's 22 your question.</p> <p>23 MR. ENG: There are many 24 opportunities to do more than 20.</p> <p>25 CHAIRMAN MORELOCK: So eventually,</p>

<p style="text-align: right;">Page 34</p> <p>1 what would that look like?</p> <p>2 MR. ENG: To answer your question,</p> <p>3 Mr. Chairman, our RBI program that we want to</p> <p>4 validate --</p> <p>5 CHAIRMAN MORELOCK: Yes.</p> <p>6 MR. ENG: -- would take anywhere</p> <p>7 between six to ten years, is my thinking.</p> <p>8 CHAIRMAN MORELOCK: Okay.</p> <p>9 MR. ENG: And we're only in about</p> <p>10 four years of operation today, so we are still</p> <p>11 validating our RBI program internally as well as</p> <p>12 for the board members.</p> <p>13 CHAIRMAN MORELOCK: Yes.</p> <p>14 So does that answer your question,</p> <p>15 Dr. Hargrove?</p> <p>16 DR. HARGROVE: Yes, it does. Not</p> <p>17 the conclusive, though.</p> <p>18 CHAIRMAN MORELOCK: Right. Well,</p> <p>19 it's a growing process with Wacker.</p> <p>20 Any other questions?</p> <p>21 MR. BAUGHMAN: Yes.</p> <p>22 Richard, who currently performs these</p> <p>23 inspections?</p> <p>24 MR. ENG: All of these internal</p> <p>25 inspections are done in-house at the moment. We</p>	<p style="text-align: right;">Page 35</p> <p>1 have API 510 certification internally. And there</p> <p>2 are some inspections where we would actually ask</p> <p>3 our sister plant in Germany to assist.</p> <p>4 CHAIRMAN MORELOCK: Okay. So --</p> <p>5 but from the State of Tennessee for an inspection,</p> <p>6 it's either going to have to be an AIA, an</p> <p>7 owner-user, or the state for an official</p> <p>8 inspection for your certificate of operation.</p> <p>9 MR. ENG: Okay.</p> <p>10 MR. CHAPMAN: Yes. That's what it</p> <p>11 is.</p> <p>12 MR. BAUGHMAN: So the next question</p> <p>13 I'd have, Richard, is how many vessels do you have</p> <p>14 that are going to require inspections?</p> <p>15 MR. ENG: For 2019 or forever?</p> <p>16 MR. BAUGHMAN: Just for now. In</p> <p>17 other words, what I'm getting at is how many</p> <p>18 vessels we're going to have. If these are going</p> <p>19 to be state inspections, and we've got ten vessels</p> <p>20 or we've got a thousand vessels, how we're going</p> <p>21 to incorporate that in manpower-wise to actually</p> <p>22 get that accomplished. Same thing with insurance.</p> <p>23 If it's an insurance inspector, how is that</p> <p>24 actually going to get taken care of manpower-wise?</p> <p>25 Because it's going to tie up somebody to a pretty</p>
<p style="text-align: right;">Page 36</p> <p>1 good extent.</p> <p>2 MR. ENG: We understand that quite</p> <p>3 well.</p> <p>4 MR. BAUGHMAN: So how many vessels</p> <p>5 would you say?</p> <p>6 MR. ENG: I would not guess on</p> <p>7 that, but hundreds is security what I'm thinking.</p> <p>8 MR. BAUGHMAN: Okay. Thank you.</p> <p>9 MR. BOWERS: So you really haven't</p> <p>10 defined how many jurisdictional vessels that you</p> <p>11 actually have right now, correct? Is that what</p> <p>12 I'm looking at?</p> <p>13 MR. ENG: When you say</p> <p>14 "jurisdictional," for the State of Tennessee</p> <p>15 requirements?</p> <p>16 MR. BOWERS: Correct.</p> <p>17 MR. ENG: We have over 780 vessels</p> <p>18 registered with the State of Tennessee.</p> <p>19 MR. BOWERS: And those 780, you</p> <p>20 haven't defined how many that were corrosive</p> <p>21 atmosphere compared to noncorrosive yet.</p> <p>22 MR. ENG: Out of the 780, we have a</p> <p>23 representative sample of thickness measurements</p> <p>24 that we feel are in the most severe condition.</p> <p>25 And we submitted those to the Board for review</p>	<p style="text-align: right;">Page 37</p> <p>1 several years ago on our methodology. And that</p> <p>2 approach was accepted.</p> <p>3 I'll give an example. We have five</p> <p>4 trains in an area called HCI recovery. And these</p> <p>5 trains are identical in operation. Typically,</p> <p>6 only two or three trains are required to maintain</p> <p>7 production. The fourth train is a capacity spare</p> <p>8 train, and the fifth train could be a train that</p> <p>9 is typically down for either inspection, repairs,</p> <p>10 modifications. And these will be rotated</p> <p>11 accordingly so that we can meet our inspection</p> <p>12 programs.</p> <p>13 That's the way the plant has been</p> <p>14 designed predominantly and through the entire</p> <p>15 facility. So we have the luxury of shutting down</p> <p>16 certain trains for the purpose of inspection or</p> <p>17 repairs.</p> <p>18 MR. BOWERS: Well, what I'm looking</p> <p>19 at, as an inspector going to your plant to</p> <p>20 inspect, you've got 700-something jurisdictional</p> <p>21 objects, and these are registered as unfired</p> <p>22 pressure vessels --</p> <p>23 MR. ENG: That's correct.</p> <p>24 MR. BOWERS: -- how does that</p> <p>25 inspector know which ones fall into a class of</p>

<p style="text-align: right;">Page 38</p> <p>1 external inspection only? Or these certain 2 objects don't fall into that class; they fall into 3 a class needing an internal inspection. 4 MR. ENG: I think all pressure 5 vessels will require an internal inspection 6 eventually. So it's either 10 years, based on 7 API, or something beyond 10 years based only RBI 8 recommendation. So that's how we know. 9 CHAIRMAN MORELOCK: So just to add 10 to that, as you work through these 780 registered 11 vessels with the State of Tennessee, if you do 12 have trains where everything is identical, yes, 13 the Board would discuss and I would say they would 14 approve if the metallurgy is the same, the 15 temperature, the pressures, operating conditions. 16 But if you do any management and change work to 17 any of those trains, you're going to have to go 18 back and reevaluate. 19 MR. ENG: That's correct. That's 20 our intent, and that's our requirement. 21 CHAIRMAN MORELOCK: And so then it 22 becomes -- we've not gotten to the stage as a 23 board yet where Wacker has come to us and said, 24 "We are requesting to extend an internal 25 inspection frequency to a number beyond the two</p>	<p style="text-align: right;">Page 39</p> <p>1 years yet. Okay? So again -- so we've got new 2 board members, so we have not approved any 3 extended inspection frequencies yet. We agree 4 with your methodology, but we have not actually 5 made any approvals of extension of internal 6 inspection frequencies. 7 Does that clarify things a little 8 bit? 9 MR. BAUGHMAN: It does. 10 The one thing that comes to mind, 11 Richard, is just the logistics of inspecting 780 12 jurisdictional vessels and how that's going to be 13 communicated back to the State, whether the State 14 is going to be inspecting them, because then the 15 boiler unit is going to need to be well-advised of 16 that. From a manpower-wise and just running the 17 math out on it, it's a lot of time for an 18 inspector to be at your facility taking care of 19 other duties also. And right now, manpower is 20 kind of at a premium within our unit. 21 So moving forward, this just needs to 22 be communicated fairly soon, as these inspections 23 come due and so forth on there. 24 I don't have the answer, but I know 25 that it just needs to be brought up and discussed</p>
<p style="text-align: right;">Page 40</p> <p>1 so that everybody is on the same page and is able 2 to address it. 3 MS. JEFFERSON: I just have a 4 question. Is it possible for some of the vessels 5 to be placed on intervals to be actually inspected 6 intervals, or is it necessary that all of them be 7 performed at the same time? Because if all of 8 them are performed at that same time, as you said, 9 that would put a burden on the State if the State 10 is required to perform all those inspections. 11 CHAIRMAN MORELOCK: So the key is 12 are all the trains operating at the same time? 13 MR. ENG: No. 14 CHAIRMAN MORELOCK: Okay. There's 15 your answer. So as a train comes online and 16 becomes active, that two-year clock starts. When 17 they shut down a process, then they can let the 18 State know that that train or those vessels are 19 inactive. But then they would have to be 20 inspected before it goes back into service. But 21 if they're on a continuous service, if what 22 Baughman said is true, you would have 780 vessels 23 potentially that you would be inspecting every two 24 years. So that's where their program will have to 25 detail what that's going to look like for us.</p>	<p style="text-align: right;">Page 41</p> <p>1 MR. ENG: If I may clarify 2 something. Not every part of the plant has a 3 spare train on idle. For instance, another part 4 of the plant, we have four trains, but they rotate 5 these four trains. Okay? So all trains could be 6 running at the same time. The one train 7 individually can always come down for repairs and 8 inspections and modifications. So if that 9 clarifies your question there. 10 The other part is that -- an example 11 of a filter that we have is registered with the 12 State. We have ten filters, and we registered ten 13 vessels. If these filters are all on the same 14 application, identical in design, identical in 15 metallurgy, if we conduct one internal inspection, 16 we are using the methodology that that inspection 17 applies to all ten. And that was the approach 18 that we took to determine inspection frequencies. 19 CHAIRMAN MORELOCK: Hold on. 20 Deborah had a question. 21 MS. RHONE: Oh, no. I was just 22 going to say I believe Tommy Spangler is the state 23 inspector that performs most of the inspections 24 with Wacker, and yes, Tommy does inspect them in 25 intervals. Normally, we receive inspection</p>

<p style="text-align: right;">Page 42</p> <p>1 reports either weekly or biweekly of different 2 vessels that have been inspected. So no, they're 3 not inspected all at the same time.</p> <p>4 MR. ENG: He comes out, I would 5 say, not quite weekly, but every other week he's 6 on our site.</p> <p>7 CHAIRMAN MORELOCK: Mr. Bowers, you 8 had a question.</p> <p>9 MR. BOWERS: Well, I think that 10 answered it. I was going to ask if it's covered 11 by an insurance inspector or a state inspector.</p> <p>12 MR. ENG: Oh, yes. State inspector 13 comes out regularly.</p> <p>14 MR. BAUGHMAN: So taking the 15 example of the ten filters all being identical on 16 the same process, but what -- how do we know that 17 one isn't utilized more than the other? In other 18 words, are they all ten online at the same time 19 taking the same load, or does one filter have more 20 use than another and so forth?</p> <p>21 MR. ENG: I mean, that's a good 22 question. Maybe all ten are not being used a 23 hundred percent, all the time. We would take the 24 worst-case situation, the highest use in the worst 25 possible environment.</p>	<p style="text-align: right;">Page 43</p> <p>1 MR. BAUGHMAN: Sure. Well, I guess 2 what I'm getting at is that we couldn't just carte 3 blanche say that they're all ten the same --</p> <p>4 MR. ENG: Understood.</p> <p>5 MR. BAUGHMAN: -- and use one 6 inspection to cover all ten.</p> <p>7 MR. ENG: We would be selective in 8 that criteria.</p> <p>9 MR. TOTH: Just curiosity, what 10 kind of NDE do you perform on these vessels, if 11 any?</p> <p>12 MR. ENG: PT is very common for us.</p> <p>13 MR. TOTH: Any volumetric?</p> <p>14 CHAIRMAN MORELOCK: Well, you're 15 doing ultrasonic thickness readings.</p> <p>16 MR. TOTH: Okay.</p> <p>17 MR. ENG: Yeah. We do UT, we do 18 PT --</p> <p>19 CHAIRMAN MORELOCK: You don't have 20 what I have, so...</p> <p>21 MR. TOTH: Yeah. I know I don't 22 have what you have.</p> <p>23 MR. ENG: -- and sometimes we do 24 RT. Depends on the situation.</p> <p>25 MR. ROBINSON: You said your</p>
<p style="text-align: right;">Page 44</p> <p>1 inspectors are APS inspectors. Are they also 2 certified to the National Standard --</p> <p>3 MR. ENG: No.</p> <p>4 MR. ROBINSON: No credentials at 5 all?</p> <p>6 MR. ENG: No, not in our facility.</p> <p>7 MR. ROBINSON: So no SNT-TC-1A or 8 nothing?</p> <p>9 MR. ENG: I don't think so. But we 10 use an external company to do all of our NDT.</p> <p>11 MR. ROBINSON: X-ray?</p> <p>12 MR. ENG: Yes. Everything we do is 13 external certified.</p> <p>14 MR. ROBINSON: Perfect. Thank you.</p> <p>15 CHAIRMAN MORELOCK: But as an 16 owner-user, for an owner, you will need to make 17 sure that there's --</p> <p>18 MR. ENG: Certifications up to 19 date.</p> <p>20 CHAIRMAN MORELOCK: And you'll need 21 copies of all that.</p> <p>22 MR. ENG: Yes, we do. We have 23 those.</p> <p>24 CHAIRMAN MORELOCK: So you have it. 25 Okay.</p>	<p style="text-align: right;">Page 45</p> <p>1 DR. HARGROVE: (Indicating.)</p> <p>2 CHAIRMAN MORELOCK: Yes, 3 Dr. Hargrove.</p> <p>4 DR. HARGROVE: I just wanted to ask 5 the other gentleman to describe his role and 6 responsibilities.</p> <p>7 MR. HIPPE: Dr. Hargrove, I'm a 8 mechanical engineer. I've been working with 9 Richard at the Wacker site for a few years. I do 10 a lot of the background work so he can help 11 present some of this. I'm doing inspection 12 documentation, trying to do the risk analysis in 13 some of this so we have numbers to give to you 14 guys, monitoring some of our thickness 15 measurements, doing inspection documentation, 16 evergreening in our Meridium system so that we can 17 keep track of where some of these risk ranks and 18 things are at to help us prioritize inspections.</p> <p>19 DR. HARGROVE: Thank you.</p> <p>20 MR. ROBINSON: Question for you, 21 sir. Do you also use FEMA metrics to more or less 22 classify minor, major, critical? I know you're 23 doing a corrosive, but say, for example, an event 24 were to happen. Well, that piece of equipment is 25 critical to that event. Do you rate that piece of</p>

<p style="text-align: right;">Page 46</p> <p>1 equipment 1, 2, 3 so you can --</p> <p>2 MR. HIPPI: Yeah. We have a</p> <p>3 consequence of failure and a probability of</p> <p>4 failure that we go through.</p> <p>5 MR. ROBINSON: Perfect.</p> <p>6 MR. HIPPI: So we're calculating a</p> <p>7 probability of failure based on design and we</p> <p>8 process information and consequence, of course,</p> <p>9 based on fluid categories, things like that and</p> <p>10 operating pressures and --</p> <p>11 MR. ROBINSON: Very nice. And</p> <p>12 then, naturally, removing the probability of</p> <p>13 failure by increasing inspection, or --</p> <p>14 MR. HIPPI: Yes. Well, right now</p> <p>15 our probability, since everything is new, is low,</p> <p>16 so we're just trying to keep it low, is our --</p> <p>17 MR. ROBINSON: Keep it there. Very</p> <p>18 nice.</p> <p>19 CHAIRMAN MORELOCK: And so that</p> <p>20 methodology is coming from API 580 and 581?</p> <p>21 MR. HIPPI: Yes, sir.</p> <p>22 CHAIRMAN MORELOCK: Okay. So just</p> <p>23 to kind of wrap this up, Wacker is currently doing</p> <p>24 internals on the two-year schedule. They're</p> <p>25 trying to build an RBI program to accomplish one</p>	<p style="text-align: right;">Page 47</p> <p>1 of two things, either a noncorrosive service</p> <p>2 and/or an extension of internal inspection</p> <p>3 frequencies. So as they gather their data,</p> <p>4 they'll come back to the Board with a proposal.</p> <p>5 They're just giving us an update of where they're</p> <p>6 at in the early stages of a new facility. Okay?</p> <p>7 DR. HARGROVE: Mr. Chairman, is</p> <p>8 there a date when this period ends?</p> <p>9 CHAIRMAN MORELOCK: Well, I mean,</p> <p>10 as long as they're doing their internals every two</p> <p>11 years, they can go as long as they want to.</p> <p>12 MR. BAUGHMAN: Deborah Rhone</p> <p>13 mentioned that Tommy Spangler was the current</p> <p>14 inspector, jurisdictional inspector, for the State</p> <p>15 of Tennessee, coming into the facility. How many</p> <p>16 inspectors -- and he's there weekly, biweekly,</p> <p>17 once every two weeks. How many vessels is he</p> <p>18 inspecting each time he comes out?</p> <p>19 MS. RHONE: Usually, it's between</p> <p>20 20 and 35 when he comes in for his visit.</p> <p>21 MR. BAUGHMAN: Okay. So he's doing</p> <p>22 20 to 35 vessels per visit.</p> <p>23 MS. RHONE: Now, it may not be that</p> <p>24 same day, you know.</p> <p>25 MR. BAUGHMAN: Okay. Maybe during</p>
<p style="text-align: right;">Page 48</p> <p>1 the week?</p> <p>2 MS. RHONE: Right. It was during</p> <p>3 the time frame that when we received those -- the</p> <p>4 information, the inspections, yes.</p> <p>5 MR. BAUGHMAN: Okay. I was just</p> <p>6 extrapolating the numbers out to kind of look at</p> <p>7 Mr. Spangler's time involved and the number of</p> <p>8 vessels per inspection, the amount of time taken</p> <p>9 per inspection, to properly inspect a vessel. So</p> <p>10 thank you.</p> <p>11 CHAIRMAN MORELOCK: Well, so to go</p> <p>12 back to your report, internal inspections</p> <p>13 performed in 2018, is it really ten or is it more</p> <p>14 than ten?</p> <p>15 MR. ENG: I would say more than</p> <p>16 ten. Perhaps even more than that.</p> <p>17 CHAIRMAN MORELOCK: Okay. So I</p> <p>18 guess a recommendation from the Board would be go</p> <p>19 back with all this information, and you may want</p> <p>20 to update your report to see where you're really</p> <p>21 at.</p> <p>22 MR. ENG: Yes, sir.</p> <p>23 CHAIRMAN MORELOCK: And that</p> <p>24 will -- and then plan for 2019. That probably</p> <p>25 will be a bigger number, too.</p>	<p style="text-align: right;">Page 49</p> <p>1 MR. ENG: We'll update that as</p> <p>2 well.</p> <p>3 CHAIRMAN MORELOCK: Any other</p> <p>4 questions?</p> <p>5 MR. BOWERS: I would just recommend</p> <p>6 that Tommy Spangler should be your best resource</p> <p>7 on telling you how many internals you've done.</p> <p>8 You could ask him and say, "Well, how many</p> <p>9 internals have we done this last year?" He should</p> <p>10 have a record of that.</p> <p>11 CHAIRMAN MORELOCK: Well, and</p> <p>12 Deborah would have that record as well.</p> <p>13 MR. BOWERS: Deborah would have it,</p> <p>14 actually.</p> <p>15 MS. RHONE: I could provide that</p> <p>16 information.</p> <p>17 CHAIRMAN MORELOCK: She's got that.</p> <p>18 MS. RHONE: Yes, we could.</p> <p>19 CHAIRMAN MORELOCK: And so that</p> <p>20 will let Wacker know how many vessels that you</p> <p>21 have --</p> <p>22 And I misspoke a minute ago,</p> <p>23 Cassandra.</p> <p>24 It's a certificate of inspection for</p> <p>25 safe operation of the vessel, so -- I said</p>

<p style="text-align: right;">Page 50</p> <p>1 certificate of operations. So anyway -- but the 2 point is when you're running a train, you need to 3 make sure everything that gets pressured up has 4 got valid, current certificates so you can safely 5 operate it.</p> <p>6 MR. ENG: That's our requirement as 7 well as yours.</p> <p>8 CHAIRMAN MORELOCK: Okay. Any 9 other questions or comments? 10 (No verbal response.)</p> <p>11 CHAIRMAN MORELOCK: All right. Do 12 I have a motion for Wacker to continue their RBI 13 program development? 14 MR. BAILEY: Conflicts? 15 CHAIRMAN MORELOCK: Thank you. 16 Any conflicts of interest? 17 (No verbal response.)</p> <p>18 CHAIRMAN MORELOCK: Okay. 19 DR. HARGROVE: A motion to approve. 20 MR. BOWERS: Second. 21 CHAIRMAN MORELOCK: Any additional 22 comments? 23 (No verbal response.) 24 CHAIRMAN MORELOCK: All in favor 25 say "aye."</p>	<p style="text-align: right;">Page 51</p> <p>1 (Affirmative response.) 2 CHAIRMAN MORELOCK: Opposed? 3 (No verbal response.) 4 CHAIRMAN MORELOCK: Abstentions, 5 not voting? 6 (No verbal response.) 7 CHAIRMAN MORELOCK: Thank you, 8 gentlemen. 9 MR. ENG: Thank you. 10 CHAIRMAN MORELOCK: That will take 11 us to Item 18-12, Maury Regional Medical Center 12 requesting a new variance for two high-pressure 13 boilers that operate under the requirements of 14 0800-03-03-.08(11). 15 So, gentlemen, if you'll introduce 16 yourselves, and you have the floor. 17 MR. NEVILLE: Good morning. James 18 Neville with Neville Engineering. 19 MR. CORVIN: Paul Corvin, Maury 20 Regional Medical Center, director of plant 21 operations. And we appreciate your attention and 22 your presence. 23 MR. NEVILLE: Our proposal today is 24 for a variance for two power boilers. These 25 boilers are operated on demand 24 hours a day,</p>
<p style="text-align: right;">Page 52</p> <p>1 7 days a week. They provide high-pressure steam 2 for space heating, potable water, sterilizers, 3 humidification, and cooking.</p> <p>4 Our site plan on page 2 shows the 5 location of the power house in relation to the 6 remote station, which will be at the PBX 7 operator's office.</p> <p>8 The individuals involved in this 9 variance at the remote station will be the PBX 10 operator. They will be responding to boiler 11 alarms and be involved in testing that circuit 12 every shift.</p> <p>13 As far as the boiler attendants for 14 the facility, we list those on page 7 so that the 15 director of plant operations, HVAC supervisor, 16 lead boiler operator, and the maintenance 17 mechanic, are the four positions that have been 18 assigned for that. Their job description is in 19 Appendix G.</p> <p>20 The boiler on Appendix A, at the time 21 of this printing, the Tennessee number for 22 Boiler 1 was pending. We do have that Tennessee 23 number now, and I can give it to the Board. It's 24 T111578. 25 The Boiler Number 2 was an existing</p>	<p style="text-align: right;">Page 53</p> <p>1 boiler which had been on a previous variance, but 2 the controls were upgraded on this to the Hawk1000 3 control system. So that has been updated, but 4 this is considered a new variance for both due to, 5 one, the new boiler and the new controls on 6 Boiler 2. 7 Are there any questions? Do you have 8 any questions? 9 CHAIRMAN MORELOCK: I'm going to 10 open the floor for discussion. So what questions 11 do you have? 12 MR. FOX: I've got a question on 13 the Hawk -- 14 MR. BAILEY: I'm sorry. I think 15 you need a motion to discuss and whether there's 16 any conflicts before the discussion. 17 CHAIRMAN MORELOCK: Okay. I'll do 18 that. 19 So I need a motion to discuss this 20 item. 21 MR. BAUGHMAN: So moved. 22 CHAIRMAN MORELOCK: Second? 23 MR. BOWERS: Second. 24 CHAIRMAN MORELOCK: All right. Any 25 conflicts on this item?</p>

<p style="text-align: right;">Page 54</p> <p>1 MR. BOWERS: Maybe. I think we 2 insured them.</p> <p>3 CHAIRMAN MORELOCK: Okay. 4 Mr. Bailey, do you want to know what 5 that conflict is?</p> <p>6 MR. BAILEY: Yeah. He said he -- 7 MR. BOWERS: I said we insured 8 them.</p> <p>9 MR. BAILEY: If you think there's a 10 potential conflict, you won't be able to vote on 11 the final motion of whether to approve or not to 12 approve. You can participate in the discussion 13 but nothing that pertains to you possibly insuring 14 them.</p> <p>15 CHAIRMAN MORELOCK: All right. The 16 floor is open for discussion.</p> <p>17 MR. FOX: I have a question about 18 your Hawk controls that are on these boilers. You 19 say they're Hawk1000, correct?</p> <p>20 MR. NEVILLE: That is correct. 21 MR. FOX: So both boilers have -- 22 do they have O2 trim?</p> <p>23 MR. CORVIN: Yes, sir, both boilers 24 have O2 trim. 25 MR. FOX: Okay. So would that</p>	<p style="text-align: right;">Page 55</p> <p>1 not -- I'm familiar with Hawk. Would that not 2 fall under the Hawk4000 instead of the Hawk1000?</p> <p>3 MR. NEVILLE: It's my understanding 4 this is the Hawk1000 controller.</p> <p>5 MR. FOX: Okay. 6 MR. NEVILLE: That's the 7 information we were -- Appendix B lists the -- 8 MR. CORVIN: On the newer of the 9 two boilers, which is -- it says Hawk4000. I've 10 got the manual for the new boiler, and I replaced 11 the entire boiler, and it does say Hawk4000.</p> <p>12 MR. FOX: Yeah. So that's what I 13 was looking at. If you had the Servos and the O2 14 trim and all that -- like I said, I'm a little bit 15 familiar with Hawk. That's normally not on the 16 1000 system. It would have been the 4000 system.</p> <p>17 MR. CORVIN: Yes, sir, you are 18 correct.</p> <p>19 MR. BAUGHMAN: So, then, are -- 20 MR. NEVILLE: So -- 21 MR. BAUGHMAN: Are we then -- so we 22 don't have the correct hardware in the manual to 23 evaluate; is that correct? 24 MR. NEVILLE: Right. So the 25 Hawk4000 is on Boiler 1. The Hawk1000 is on</p>
<p style="text-align: right;">Page 56</p> <p>1 Boiler 2.</p> <p>2 MR. CORVIN: Boiler 2, that's 3 correct.</p> <p>4 MR. NEVILLE: The information will 5 need to be added for the Hawk4000.</p> <p>6 MR. BAUGHMAN: Do we have the 7 information here to be able to review for the 8 Hawk4000?</p> <p>9 MR. CORVIN: Yes. I've got the 10 entire manual on the Hawk4000 right here. I only 11 have one copy. Would you like me to pass it 12 through?</p> <p>13 CHAIRMAN MORELOCK: Yes. 14 MR. BAUGHMAN: So in reference to 15 the Hawk1000, offhand -- 16 MR. CORVIN: Yes, sir. 17 MR. BAUGHMAN: -- Appendix B, 18 page B-4, about halfway down, remote setpoint by 19 communications. What does that mean? 20 MR. CORVIN: Remote setpoint? 21 There's no remote setpoint. It's all done on the 22 boiler. There's no control away from the boiler. 23 The technicians are only going to respond back 24 from a boiler alarm. And they're on site 24/7, 25 and they respond to any alarms, and then any</p>	<p style="text-align: right;">Page 57</p> <p>1 control changes, if we were to make it, usually 2 not. Usually, my lead boiler operator or I make 3 those changes. And usually, we come -- you know, 4 we always come out and are present with the 5 boiler. And it's on site with the boiler 6 controller.</p> <p>7 MR. BAUGHMAN: We do have 8 communications set up with this. 9 MR. CORVIN: Yes, sir. Hardwired 10 to the switchboard for alarms and shutdown, remote 11 shutdown. 12 MR. BAUGHMAN: We have no other 13 communications set up via Modbus to enunciate over 14 to a smart phone or a computer or anything on that 15 nature? 16 MR. CORVIN: With the older Hawk 17 system, we did have a beeper system that would. 18 But we do have remote communications, and it comes 19 to our emails and to our smart phones to every 20 technician. And we get those. 21 MR. BAUGHMAN: Okay. 22 MR. CORVIN: And I can be sitting 23 at my computer and get that same alarm as the 24 switchboard gets. Yes, sir. 25 MR. BAUGHMAN: And that's one of</p>

<p style="text-align: right;">Page 58</p> <p>1 the issues that we've got to contend with, is that 2 even though you may not have it set up, we do have 3 communications in this day and age that can be 4 hacked. And this particular hardware does have a 5 remote setpoint capability which just leaves some 6 concern for down the road. I understand you 7 wouldn't use it.</p> <p>8 MR. CORVIN: We don't. 9 MR. BAUGHMAN: But could it be 10 used? 11 MR. CORVIN: No, sir. 12 MR. NEVILLE: I don't believe the 13 ethernet has been hooked up to that. 14 MR. CORVIN: No, sir. 15 MR. NEVILLE: It has the capability 16 of ethernet, but it does not -- 17 MR. BAUGHMAN: On which one, the 18 old one or the new one? 19 MR. NEVILLE: This is on -- the 20 Hawk1000 is on the old one. 21 MR. BAUGHMAN: Okay. Well, he just 22 mentioned that there was -- I thought it was 23 hooked up on the old 1000, is what he had said. 24 MR. CORVIN: On both boilers, we 25 have the ability to receive the alarm by computer,</p>	<p style="text-align: right;">Page 59</p> <p>1 but we do not have any way to control it the other 2 direction. 3 MR. BAUGHMAN: Okay. But we do 4 enunciate back out, you said, via email, so forth. 5 So there is a communications mechanism. 6 MR. CORVIN: Internal to the 7 hospital only; not external. 8 MR. BAUGHMAN: Okay. Super. 9 MR. CORVIN: Yes, sir. And that's 10 called the intranet, not the internet. It's not 11 going out, away from the hospital. 12 MR. BAUGHMAN: Thank you. 13 MR. CORVIN: Yes, sir. 14 MR. FOX: I would just like to see 15 a change in the manual, of course, and also 16 incorporate the 4000 Hawk codes in your main 17 manual. 18 MR. NEVILLE: In Appendix B. We'll 19 do that. 20 CHAIRMAN MORELOCK: I've got just a 21 few comments. Nitpicky. I apologize. But on 22 page 1, you state that the difference between the 23 boiler room and remote station is approximately 24 350 feet. But when you look at Figure 1, Figure 1 25 says 580 feet.</p>
<p style="text-align: right;">Page 60</p> <p>1 MR. CORVIN: 580 feet is correct. 2 CHAIRMAN MORELOCK: Okay. Again, 3 this is your manual, so we just want to make 4 you... 5 The organizational chart in 6 Appendix D is correct, but it's just kind of hard 7 to read with that black background. And the text 8 is pretty small for us aging people. 9 MR. NEVILLE: We can invert the 10 colors on this. 11 CHAIRMAN MORELOCK: So you state 12 that the boilers operate 24/7. And so how is that 13 handled with your remote and your boiler 14 attendance? Is it three eight-hour shifts, two 15 twelves? 16 MR. CORVIN: We do two twelves. 17 CHAIRMAN MORELOCK: Okay. 18 MR. CORVIN: And we are checking 19 the boiler every four hours. Every time they take 20 a break, they go back to the power plant, and we 21 actually create an alarm and physically check the 22 boiler every four hours, regardless of shift. And 23 so that's something we've been doing for some time 24 with our boilers, and it works well. 25 We have a person on site 24/7,</p>	<p style="text-align: right;">Page 61</p> <p>1 365 days a year. 2 CHAIRMAN MORELOCK: Okay. 3 MR. CORVIN: And it just frees them 4 up so they're not logging the boiler constantly. 5 And the switchboard, if they get any alarm, they 6 shut down the boiler first. And through their 7 protocols, as you've seen in the manual, they 8 notify the boiler technician. And if something 9 were to happen to him, God forbid, then we have 10 other people, myself, my manager, that works for 11 me, and we have a technician on call. And so we 12 have three other people backing him up. We take 13 it seriously. We have a great power plant 14 operation, and they're doing a marvelous job. 15 MR. BAUGHMAN: You say every four 16 hours somebody is in the boiler room and they 17 create an alarm for the -- 18 MR. CORVIN: Yes, sir. They either 19 do the alarm -- they can create the alarm by 20 snuffing out the sensor, for the flame sensor, 21 that would create an alarm, or we can blow it down 22 and create a low-water sense. And so we've got 23 different ways we can set the boiler off. 24 MR. BAUGHMAN: But you're 25 physically shutting the boiler off and not doing</p>

<p style="text-align: right;">Page 62</p> <p>1 just an alarm test.</p> <p>2 MR. CORVIN: We do the shutdown</p> <p>3 beginning of every shift, but don't necessarily</p> <p>4 shut the boiler down. But we can create an alarm</p> <p>5 without shutting it down.</p> <p>6 MR. BAUGHMAN: You can create a</p> <p>7 false alarm.</p> <p>8 MR. CORVIN: Yes, sir.</p> <p>9 CHAIRMAN MORELOCK: Well, on that</p> <p>10 same vein, if you go to page 5 for your remote</p> <p>11 monitoring and compare that to page 8 for your</p> <p>12 boiler attendant, on page 5, under normal duties,</p> <p>13 you say once each day the boiler attendant will</p> <p>14 contact the remote station. Would that be once</p> <p>15 each shift?</p> <p>16 MR. CORVIN: Well, it should be</p> <p>17 once each shift. And it's twice a day because</p> <p>18 you're doing it at 7:00 in the morning and</p> <p>19 7:00 p.m. at night, yes, sir.</p> <p>20 CHAIRMAN MORELOCK: Because your</p> <p>21 boiler attendant is correct. It says at each</p> <p>22 shift.</p> <p>23 MR. CORVIN: Yes.</p> <p>24 CHAIRMAN MORELOCK: So just for</p> <p>25 consistency in your manual.</p>	<p style="text-align: right;">Page 63</p> <p>1 MR. CORVIN: Yes, sir. Thank you.</p> <p>2 CHAIRMAN MORELOCK: Okay. All</p> <p>3 right. On page 7, you're stating, under training,</p> <p>4 the last sentence of the last paragraph, it says,</p> <p>5 "Your documentation log is Appendix G, but really</p> <p>6 that it's Appendix H; is that correct?</p> <p>7 MR. CORVIN: That's correct, sir.</p> <p>8 CHAIRMAN MORELOCK: Okay. And then</p> <p>9 where it says see Appendix H, up in the top under</p> <p>10 personnel, that should be Appendix G.</p> <p>11 MR. NEVILLE: That is correct.</p> <p>12 MR. CORVIN: Yes, sir.</p> <p>13 CHAIRMAN MORELOCK: Okay. And</p> <p>14 that's all the comments that I have. Any other</p> <p>15 comments or questions?</p> <p>16 MR. BAUGHMAN: Yes. So we're not</p> <p>17 shutting the boiler down, necessarily, when we're</p> <p>18 doing an alarm back to the remote station.</p> <p>19 MR. CORVIN: We do on -- excuse me.</p> <p>20 On the beginning of the shift, we do shut the</p> <p>21 boiler down.</p> <p>22 MR. BAUGHMAN: Okay.</p> <p>23 MR. CORVIN: Yes, sir.</p> <p>24 MR. BAUGHMAN: So there's not a</p> <p>25 time that we just do a false alarm just to check</p>
<p style="text-align: right;">Page 64</p> <p>1 the alarm circuit itself? We don't hit that shunt</p> <p>2 that doesn't shut the boiler off, but will make an</p> <p>3 alarm?</p> <p>4 MR. CORVIN: At the beginning of</p> <p>5 the shift, so that the technician knows everything</p> <p>6 is working correctly and that the attendant, the</p> <p>7 operator, is doing her job correctly, he actually</p> <p>8 shuts the boiler down and creates the alarm. She</p> <p>9 shuts the boiler down. We have the indication of</p> <p>10 that. Then we call her back and say please reset</p> <p>11 the boiler, and she turns it back on. And then we</p> <p>12 reset the boiler afterwards, because it still</p> <p>13 won't come back on until we reset the boiler.</p> <p>14 MR. BAUGHMAN: Great. Well, and</p> <p>15 that's kind of what I was getting at, was just</p> <p>16 making sure that we weren't checking just the</p> <p>17 alarm circuit and make sure there wasn't an alarm</p> <p>18 going and -- because the protocol would be the</p> <p>19 remote attendant needing to pull the e-stop also.</p> <p>20 MR. CORVIN: And you're correct.</p> <p>21 And just for the sake of my technicians, when they</p> <p>22 leave the boiler plant, they want to make certain</p> <p>23 that the boiler alarm is working, so they will</p> <p>24 check it every four hours when they come down and</p> <p>25 do their rounds and checks. They make certain</p>	<p style="text-align: right;">Page 65</p> <p>1 before they leave that everything is still working</p> <p>2 right.</p> <p>3 MR. BAUGHMAN: The problem I've got</p> <p>4 with checking a boiler once every four hours --</p> <p>5 and I know that it's all about safety -- but</p> <p>6 there's things that go on with the boiler that, in</p> <p>7 extending the four-hour period of time, doesn't</p> <p>8 necessarily bring an increased level of safety to</p> <p>9 the equation; i.e., if we blow a door gasket off</p> <p>10 the back end of a cleaver, we can get hot gas</p> <p>11 coming out. Or if we've got a hand hole that</p> <p>12 blows or leaks, a sight glass that should blow, so</p> <p>13 I always advocate checking the boiler more than</p> <p>14 once every four hours.</p> <p>15 And I understand the purpose of the</p> <p>16 variance, I'm just not always in agreement that it</p> <p>17 brings a higher level of safety to the equation.</p> <p>18 MR. CORVIN: Yes, sir. Since our</p> <p>19 first boiler variance in December of 1988, we have</p> <p>20 always had the practice of our technicians, any</p> <p>21 time they're not doing work in the hospital,</p> <p>22 they're going to the power plant making rounds,</p> <p>23 because that is the heartbeat of the hospital.</p> <p>24 And without the boiler, there's a lot of things</p> <p>25 that will go wrong, and -- without our power</p>

<p style="text-align: right;">Page 66</p> <p>1 systems and chiller systems. And they create this 2 practice and we inbred that in. We train to that 3 to our new employees when we change shifts and 4 some of them get promoted, then we actually have a 5 sign-off sheet for everything that they do, and we 6 inbred that into them during our training process.</p> <p>7 MR. BAUGHMAN: That's super.</p> <p>8 MR. CORVIN: And then they work 9 beside a shift person, usually a week or two weeks 10 before we let them out on their own. But after, 11 we actually go out and test them. We pull the 12 boiler alarm or we create alarms for them or a 13 fire alarm, two-system alarm. We create all these 14 alarms, and they have to respond back with the 15 proper -- or they don't get to go on shift by 16 themselves.</p> <p>17 MR. BAUGHMAN: Super. Why was 18 Number 1 boiler replaced?</p> <p>19 MR. CORVIN: It was back this time 20 last year, we had some bugs to work out. Through 21 the process, you know, with downsizing the boiler 22 from a 800 horse to a 400 horse. We don't have a 23 laundry now. And there were some -- you know, the 24 efficiencies of the boiler. There were some 25 things that we had to tweak the controls and do</p>	<p style="text-align: right;">Page 67</p> <p>1 some things to get it where it would run right. 2 And then, working with Neville 3 Engineering, we wanted to update our variance for 4 the entire power plant. Because we had originally 5 had a variance per boiler. And so when we 6 upgraded the controls on Boiler Number 2 and got 7 the oxygen trim in the 1000, that's when we had 8 that variance updated.</p> <p>9 And so we had a few issues, 10 time-wise, to get on the agenda to come here, 11 which delayed it a few times getting here. Yes, 12 sir.</p> <p>13 MR. BAUGHMAN: Was the old variance 14 still in effect?</p> <p>15 MR. CORVIN: Yes, sir.</p> <p>16 MR. BAUGHMAN: Thank you.</p> <p>17 CHAIRMAN MORELOCK: Any other 18 questions or comments? 19 (No verbal response.)</p> <p>20 CHAIRMAN MORELOCK: Hearing none, 21 do I have a motion for this new variance for Maury 22 Regional Medical Center?</p> <p>23 MR. BAUGHMAN: So moved.</p> <p>24 CHAIRMAN MORELOCK: Okay. I have a 25 motion. Do I have a secondary?</p>
<p style="text-align: right;">Page 68</p> <p>1 MR. BAUGHMAN: Well, contingent. 2 CHAIRMAN MORELOCK: Yeah, we'll add 3 that here.</p> <p>4 MR. BAUGHMAN: Okay. Thank you.</p> <p>5 DR. HARGROVE: Second on the 6 motion.</p> <p>7 CHAIRMAN MORELOCK: Okay. As the 8 Tennessee Board reviews these, these approvals are 9 contingent on a site visit from the chief 10 inspector or the deputy inspector for a site 11 visit. And Mr. Baughman's concern about the 12 Hawk4000 literature, he wants a contingency put on 13 there to give him a little time to review the 14 Hawk4000 literature. And so that will just be 15 part of the contingent approval.</p> <p>16 MR. BAILEY: And also the updates 17 that you-all are --</p> <p>18 CHAIRMAN MORELOCK: Yes. And it 19 will also include the comments that we've made 20 during our discussion of this item before we 21 approve it. So yes. Thank you, Mr. Bailey.</p> <p>22 So hearing that, last chance for any 23 comments or questions. 24 (No verbal response.). 25 CHAIRMAN MORELOCK: Hearing none,</p>	<p style="text-align: right;">Page 69</p> <p>1 I'm going to call the question. All in favor, say 2 "aye." 3 (Affirmative response.)</p> <p>4 CHAIRMAN MORELOCK: Opposed? 5 (No verbal response.)</p> <p>6 CHAIRMAN MORELOCK: Abstentions? 7 One not voting, or an abstention, however that 8 works.</p> <p>9 Gentlemen, you have a contingently 10 approved variance.</p> <p>11 MR. NEVILLE: Thank you.</p> <p>12 CHAIRMAN MORELOCK: Before we move 13 on to our last two items on new business, let's 14 take a ten-minute break. 15 (Recess observed.)</p> <p>16 CHAIRMAN MORELOCK: Thank you-all 17 very much for promptly reconvening. So we are now 18 at Item 18-13, which is Energy Conversion Safety 19 will provide an update to an existing variance for 20 three high-pressure boilers located at Fort 21 Sanders Regional Medical Center. So introduce 22 yourselves, and you have the floor.</p> <p>23 MR. TOTH: Thank you very much, 24 Mr. Chairman and members of the board. I'm Marty 25 Toth with ECS Consulting. I would like to</p>

<p style="text-align: right;">Page 70</p> <p>1 introduce, to my right, Julius Deaton. He is a 2 multi-site facility manager there at Fort Sanders 3 Regional Medical Center. 4 And to my left is James Swanson. He 5 is a facility service technician to come help 6 explain any operational questions you may have in 7 the role that he plays. 8 As I mentioned, we are with Fort Sanders 9 Regional Medical. This is a reissuance request; 10 however, we're treating it as a new request based 11 on some changes that have been made, substantial 12 changes. 13 Originally, Fort Sanders Regional 14 Medical received their variance back in 1989. I 15 was bouncing around the Pacific Ocean on a big, 16 gray ship around that time, so it's been a little 17 while. As a matter of fact, the actual rule that 18 that was passed under was 780. And here we are 19 under 800. So that was 780-2-11-.04(22), so that 20 has been a while. 21 Currently, Fort Sanders, as they were 22 back in 1989, are operating the same three high 23 pressure boilers. They are Cleaver-Brooks D-type 24 watertube boilers, and they still maintain the 25 same remote station that is located now in the</p>	<p style="text-align: right;">Page 71</p> <p>1 security station which is attached to the 2 emergency room waiting area. 3 That station is manned 24/7 by the 4 security staff individuals. And the boilers are 5 operated 24/7 by Fort Sanders personnel that are 6 qualified boiler attendants. They run the three 7 different shifts, Monday through Friday, as I 8 allude to in the Glossary of Terms, as you will 9 see in the appendices. And on the weekends, they 10 will run two 12-hour shifts. So at any given 11 time, there is a certified boiler attendant on 12 site and a remote attendant inside of the security 13 station. 14 I was just wondering if you had any 15 additional questions for us. 16 CHAIRMAN MORELOCK: Okay. Any 17 conflicts on this item? 18 (No verbal response.) 19 CHAIRMAN MORELOCK: All right. 20 Hearing none, do I have a motion to discuss this 21 item? 22 MR. BOWERS: Motion to discuss. 23 MR. BAUGHMAN: Second. 24 CHAIRMAN MORELOCK: Okay. So what 25 questions do you have for this variance request?</p>
<p style="text-align: right;">Page 72</p> <p>1 MR. BAUGHMAN: Just real quick, 2 Mr. Toth, you mentioned this was -- so in the 3 letter, it states that this is a reissuance. You 4 mentioned, though, that this was to be considered 5 a new? 6 MR. TOTH: It can be considered 7 new, based on the new equipment that has -- boiler 8 control equipment that has been put on the boiler 9 since 1989. Fort Sanders, up to this point, was 10 under the impression that they were continuing to 11 operate their variance per their requirements. As 12 a matter of fact, they go above and beyond to do 13 every-two-hour checks on the boiler versus what 14 was passed in 1989, every four hours. 15 Then the chief's office made contact 16 with Fort Sanders, alluding to the reinspection 17 requirements that are now being enforced. At that 18 time, they contracted with myself. We then went 19 into the process of reviewing their existing 20 manual. That's when I brought it to their 21 attention, the concerns that I saw in the current 22 manual from 1989 with the requirements that the 23 board requires; and, therefore, that's why we have 24 taken the course of appearing before you versus 25 the standard reinspection through the chief's</p>	<p style="text-align: right;">Page 73</p> <p>1 office. 2 MR. BAUGHMAN: Okay. So back to my 3 original question, in the checklist -- and that's 4 why I'm asking -- it doesn't show this as a new 5 variance. It shows it as a modified and a 6 renewal. 7 MR. TOTH: Yes. 8 MR. BAUGHMAN: So that's why I was 9 just wanting clarification on what it is exactly. 10 MR. TOTH: Right. It would be a 11 modified, yes, sir. 12 MR. BAUGHMAN: It is modified. 13 Thank you. When was the last approved variance? 14 Because since you said "now that we're enforcing," 15 it alluded that we hadn't been enforcing. 16 MR. TOTH: Right. Right. Even 17 back to the point when I was chief inspector, that 18 was around the time that we started looking 19 towards putting in the requirements to have 20 variances reinspected on a tri-annual basis 21 because of some of the concerns that we saw with 22 manpower shortages, things of that nature, dealing 23 with other low-hanging fruit within the 24 department. 25 Up until recently, the office of the</p>

<p style="text-align: right;">Page 74</p> <p>1 chief inspector has been able to perform these 2 re-inspections of the variances, and doing a much 3 better job than we did back in my day. 4 MR. BAUGHMAN: So when was the last 5 variance? 6 MR. TOTH: It would have been in 7 1989. 8 MR. BAUGHMAN: Okay. 9 MR. TOTH: And I believe we will 10 see -- and we have seen that quite a bit 11 throughout the variances -- that we're starting to 12 get a handle on it. And I do applaud Chief 13 Chapman and the rest of his staff for taking on 14 that. That's definitely a difficult task. 15 CHAIRMAN MORELOCK: Those 16 tri-annual reinspections got so far behind, you 17 really had no basis to go back for renewals. It's 18 just easier to start with a fresh, new -- because 19 you didn't have any supporting data. 20 MR. BAUGHMAN: We've seen that. 21 MR. TOTH: We've seen that quite a 22 bit. 23 And if you recall, the tri-annual 24 came primarily from what we experienced with 25 evidence-based owner-user repair companies, things</p>	<p style="text-align: right;">Page 75</p> <p>1 of that nature, that we found that that was the 2 best course of action. 3 MR. BAUGHMAN: So this can be 4 considered a modified renewal. 5 MR. TOTH: Yes. 6 MR. BAUGHMAN: So there's some 7 revisions, obviously, to the original. Those 8 revisions aren't listed. 9 MR. TOTH: No, they are not. I can 10 briefly go through some of those, if you would 11 like. 12 MR. BAUGHMAN: Yes. And they 13 should be, actually, listed on a revision. If 14 this is a modified renewal, those revisions should 15 be itemized, should they not? 16 MR. TOTH: Well, they would be from 17 this point moving forward on a revision sheet 18 based on such a lapse in the time between 1989 and 19 now. This manual, if that was the case, the 20 revision pages probably would have taken up about 21 ten different, individual -- this was a complete 22 rewrite of the original variance request from 23 1989. 24 MR. BAUGHMAN: Okay. 25 MR. TOTH: So primarily, when we</p>
<p style="text-align: right;">Page 76</p> <p>1 talk about the revisions that were made, is the 2 controls, the primary safety controls, in this 3 case. Now the boilers have the Honeywell 7840 4 primary safety controls, which is your flame 5 safeguard, your burner management system. They 6 also have the Hawk ICS systems in place, which do 7 have a 02 trim, Mr. Fox. 8 MR. FOX: Thank you. 9 MR. TOTH: And that's the majority 10 of the changes that would fall under the variance. 11 Another interesting change that you would find is 12 that recently, within the past, I would say, year, 13 the past year, we installed a brand-new Cleaver 14 Brooks spray-type deaerator that is now listed 15 within the appendices. 16 CHAIRMAN MORELOCK: So based off of 17 Mr. Baughman's comment, you can do it as a 18 modified renewal with the contingency you'll put a 19 revision page in it, or you can call it a new 20 variance and no revision page. 21 MR. TOTH: I would prefer that we 22 take the course of just treating it as a new 23 variance and move on, because we are prepared for 24 that. Fort Sanders Regional and Covenant Health 25 is prepared for that also.</p>	<p style="text-align: right;">Page 77</p> <p>1 CHAIRMAN MORELOCK: Sounds like 2 there's enough changes that it pretty much is a 3 new -- 4 MR. TOTH: There were some pretty 5 substantial changes. I have to hand it to 6 Mr. Deaton, sitting to my right, that he brought 7 it to the attention that there were a lot of 8 things that though they were operating under the 9 old variance, that he felt that there had been 10 some substantial changes; therefore, that's when 11 the contact has been made to me to assist them. 12 CHAIRMAN MORELOCK: Okay. Very 13 good. Other comments or questions? 14 MR. BAUGHMAN: I'll continue, then, 15 if there's nothing else. 16 On page 3, where it shows the panel 17 itself -- 18 MR. TOTH: Yes. 19 MR. BAUGHMAN: -- it says, "Note: 20 Mounted at security station in east wing hospital 21 building." And that's where, I take it, it is 22 mounted. 23 MR. TOTH: Yes. And you will see 24 that, also, in the site plan, where that is 25 located.</p>

<p style="text-align: right;">Page 78</p> <p>1 MR. BAUGHMAN: Okay. Well, the 2 site plan didn't necessarily, I don't think -- 3 MR. TOTH: Call it the east wing? 4 MR. BAUGHMAN: Pardon? 5 MR. TOTH: Did it not call it the 6 east wing? Is that what you're -- 7 MR. BAUGHMAN: Yeah. 8 MR. TOTH: Okay. 9 MR. BAUGHMAN: And so I was just 10 kind of crossing T's, dotting I's, and lower-case 11 J's. 12 MR. TOTH: Okay. 13 MR. BAUGHMAN: The panel itself, 14 does this panel have -- I noticed it's got some 15 push-to-silence for the alarms. 16 MR. TOTH: Uh-huh. 17 MR. BAUGHMAN: So if there is an 18 alarm, you can actually silence the alarm here 19 without activating anything else. Pushing the 20 alarm does not activate the e-stop. 21 MR. TOTH: Right. Correct. And 22 that's a usual, normal installation process, 23 especially when you're looking to have 24 communications over way of telephone or radio for 25 the remote attendant to silence that alarm so</p>	<p style="text-align: right;">Page 79</p> <p>1 there can be clear communication. 2 MR. BAUGHMAN: So getting on to the 3 alarms, does this have the level master on it? 4 MR. TOTH: It does have a level 5 master. 6 MR. BAUGHMAN: Okay. 7 MR. TOTH: All three boilers do 8 have a level master. 9 MR. BAUGHMAN: Very good. The 10 panel itself, is this a panel that's built on 11 site, or is this a panel that's assembled 12 elsewhere and brought on site? 13 MR. TOTH: This is a panel that is 14 subcontracted out and assembled, brought on site 15 and wired in, yes. 16 MR. BAUGHMAN: Okay. Is this a 17 UL-listed panel assembly? 18 MR. TOTH: No, it would not be a 19 UL-listed panel assembly, nor -- I don't feel that 20 it would be necessary to have a UL-listed panel 21 assembly. 22 MR. BAUGHMAN: Are there any relays 23 in this panel? 24 MR. TOTH: There are no relays in 25 the panel itself, I don't believe. I would have</p>
<p style="text-align: right;">Page 80</p> <p>1 to check with our subcontractor on that. 2 MR. BAUGHMAN: Okay. Because being 3 integral with the control system and the 4 shutdowns, one of the things we've got to be 5 looking at is the tie-in with UL components, UL 6 listing and so forth. 7 MR. TOTH: And I do understand 8 that, and the individual components would be, but 9 not the assembled unit. And that's one thing that 10 I would like to make perfectly clear with my 11 experience throughout the state on these. You're 12 not going to find too many completed components 13 that are UL listed. You're going to find 14 independent, individual components within. So 15 hopefully, I answered your question. Because you 16 did ask about the UL listed -- 17 MR. BAUGHMAN: The assembly. 18 MR. TOTH: -- the assembly. 19 MR. BAUGHMAN: Well, and you made 20 the comment, "I believe the components are 21 individually UL listed." 22 MR. TOTH: Well, I would have to 23 check, but they should be, yes. 24 MR. BAUGHMAN: Yes, they should be. 25 MR. TOTH: Yes. They will be.</p>	<p style="text-align: right;">Page 81</p> <p>1 Let's just put it that way. 2 The question is, is when we go past, 3 from this point moving forward, my responsibility 4 within this project is to ensure that all the 5 components meet the required codes. And they 6 will. 7 MR. BAUGHMAN: Okay. 8 MR. TOTH: And at that time, when 9 the inspection is performed, the inspector will be 10 more than welcome to investigate those relays to 11 ensure they are UL listed. 12 MR. BAUGHMAN: You bet. And that 13 should be a contingency. 14 MR. TOTH: Absolutely. 15 MR. BAUGHMAN: So the boiler cannot 16 be restarted from the remote station. 17 MR. TOTH: No, it cannot. 18 MR. BAUGHMAN: Okay. So if the -- 19 by chance the e-stop was reset in the boiler 20 room -- 21 MR. TOTH: The reset in the boiler 22 room? 23 MR. BAUGHMAN: Or the e-stop out in 24 the facilities itself -- 25 MR. TOTH: Okay.</p>

<p style="text-align: right;">Page 82</p> <p>1 MR. BAUGHMAN: -- if that e-stop is 2 made, will the boiler not fire up if the e-stop is 3 made at the remote station? 4 MR. TOTH: No, it will not. 5 MR. BAUGHMAN: Okay. How would the 6 boiler be fired up? 7 MR. TOTH: At the boiler. 8 MR. BAUGHMAN: But how would it if 9 that e-stop is already reset? What else has to be 10 reset in the boiler room? 11 MR. TOTH: Okay. So in the -- I'm 12 going to try to answer this question the way I 13 believe that you're asking it. So in the 14 situation when there is an emergency where the 15 e-stop is activated at the remote station, once 16 the cause of the emergency or the alarm is 17 cleared, there will be communication back to the 18 remote station for the remote attendant to reset 19 the e-stop. At that time, then the resetting of 20 the boiler occurs at the boiler itself. 21 MR. BAUGHMAN: Sure. 22 MR. TOTH: If there -- 23 MR. BAUGHMAN: But I guess -- 24 MR. TOTH: If there is a second 25 e-stop, such as the e-stops that are located</p>	<p style="text-align: right;">Page 83</p> <p>1 within the boiler room, those, too, must be reset. 2 MR. BAUGHMAN: Uh-huh. I guess 3 what I was getting at was the wording that it 4 cannot be restarted. But in actuality, it can 5 physically if somebody so wanted; it just 6 shouldn't be restarted. 7 MR. TOTH: Okay. Can you explain 8 "it cannot be restarted"? 9 MR. BAUGHMAN: Well, if the resets 10 were already reset in the boiler room, the boiler 11 is ready to go except for one last reset. And 12 that's at the remote station. 13 MR. TOTH: Yes. 14 MR. BAUGHMAN: Once that remote 15 station would be reset, the boiler would fire up. 16 MR. TOTH: The boiler would fire up 17 as long as the alarm is cleared. 18 MR. BAUGHMAN: Yes. 19 MR. TOTH: Okay. And then we have 20 a restart, which is normal operations. 21 CHAIRMAN MORELOCK: Well, on 22 page 4, where it has the emergency procedure, 23 Item F at the bottom says, "The boiler cannot be 24 restarted from the remote station, but the switch 25 must be enabled to allow start up of the boiler.</p>
<p style="text-align: right;">Page 84</p> <p>1 This is performed by pulling the mushroom e-stop 2 button out on the right side of the panel. The 3 boiler attendant must return to the boiler room in 4 order to restart the boiler." 5 MR. BAUGHMAN: I guess what I was 6 getting at was just kind of semantics on -- 7 MR. TOTH: Oh, I definitely 8 understand where you're going with it. The 9 concern that you have is that if an emergency stop 10 is reset at a remote station, if the boiler is in 11 a position where it can restart, it will restart. 12 However, we're talking about a concern that we 13 have with a boiler going down that is in alarm 14 that is going to require a reset at the boiler 15 itself. 16 The one thing that we can do is we 17 can put it into words all we want, the proper 18 procedure; we just have to make sure we train on 19 that procedure and ensure the individuals that are 20 responsible to do what they're supposed to be 21 doing. 22 MR. BAUGHMAN: I agree. Thank you. 23 Is there ever a time when you have nuisance 24 lockouts, nuisance alarms? 25 MR. DEATON: Occasionally.</p>	<p style="text-align: right;">Page 85</p> <p>1 Occasionally. 2 MR. BAUGHMAN: And what would those 3 be? 4 MR. DEATON: High-water alarms and 5 some low-water alarms occasionally. 6 MR. BAUGHMAN: Okay. And when 7 you've got a high-water alarm -- I just want to 8 make sure the protocol is that we don't get 9 complacent with having a nuisance alarm and 10 hitting a silence switch without taking the boiler 11 offline. And some boilers give nuisance alarms. 12 MR. TOTH: Sure. And let me just 13 elaborate, just to back up what Mr. Deaton had 14 said. When we talk about the nuisance high-water 15 alarms, we're usually talking about a boiler 16 that's in the standby position -- 17 MR. DEATON: True. 18 MR. TOTH: -- is where we have 19 that. Again, it goes back to the proper training 20 and continual training of the individuals. You 21 hear an alarm, you trip the boiler, then you go 22 through the process of communications. That's it. 23 No deviation from those requirements. 24 MR. BAUGHMAN: So on page 8, 25 Section 4, under Boiler Attendant Procedures --</p>

<p style="text-align: right;">Page 86</p> <p>1 MR. TOTH: Yes.</p> <p>2 MR. BAUGHMAN: -- the fourth</p> <p>3 sentence, "The boiler will not be operated for</p> <p>4 periods of longer than 20 minutes without being</p> <p>5 checked by the boiler attendant."</p> <p>6 MR. TOTH: That's spelling out the</p> <p>7 rule.</p> <p>8 MR. BAUGHMAN: I understand. So</p> <p>9 what would I would like to know is what do they</p> <p>10 check?</p> <p>11 MR. TOTH: What do they check every</p> <p>12 20 minutes or every 4 hours?</p> <p>13 MR. BAUGHMAN: Every 20 minutes.</p> <p>14 MR. TOTH: Every 20 minutes.</p> <p>15 Here's the thing that -- let me be perfectly</p> <p>16 clear. Okay? Right now we're talking about a</p> <p>17 variance. Okay? We're talking about a variance</p> <p>18 that's going to encompass a check every four</p> <p>19 hours. If we're concerned with what they're doing</p> <p>20 every 20 minutes, does that really fall under the</p> <p>21 variance requirements? Let me just ask that.</p> <p>22 MR. BAUGHMAN: No. I'm just</p> <p>23 interested from an operational standpoint of since</p> <p>24 we've got people that aren't necessarily boiler</p> <p>25 people --</p>	<p style="text-align: right;">Page 87</p> <p>1 MR. TOTH: Actually, they are.</p> <p>2 MR. BAUGHMAN: Okay. But we've</p> <p>3 also got others that can operate under the</p> <p>4 auspices of a boiler attendant should people be</p> <p>5 out sick and so forth. Do we not have other</p> <p>6 personnel --</p> <p>7 MR. TOTH: If you're referring to</p> <p>8 Mr. Deaton as the facility's operator or a team</p> <p>9 leader -- is that what you're referring to?</p> <p>10 MR. BAUGHMAN: Any personnel other</p> <p>11 than the senior facilities technicians and so</p> <p>12 forth.</p> <p>13 MR. TOTH: Well, the facilities</p> <p>14 technicians, either one or two, or the senior</p> <p>15 facilities technicians, are boiler people. They</p> <p>16 are trained boiler people. The position of a team</p> <p>17 leader or the multi-site manager, as Mr. Deaton</p> <p>18 is, is more of a back-up role in case there is</p> <p>19 some sort of emergency or undermanning or</p> <p>20 something like that.</p> <p>21 So when we talk about it, all these</p> <p>22 individuals are going through the same training.</p> <p>23 They're going through the same operator training,</p> <p>24 a full-day class, and they have to pass an exam.</p> <p>25 So to ask that question, what are they doing every</p>
<p style="text-align: right;">Page 88</p> <p>1 20 minutes? They're taking the standard readings</p> <p>2 that they are trained to take.</p> <p>3 MR. BAUGHMAN: Good.</p> <p>4 CHAIRMAN MORELOCK: And that's</p> <p>5 addressed oath under the boiler attendant as well</p> <p>6 as Appendix G. Because it states in Appendix G</p> <p>7 that they serve as a certified boiler attendant</p> <p>8 while the boiler attendant variance is in place,</p> <p>9 to clarify, between the 20-minute rule and the</p> <p>10 four hours.</p> <p>11 MR. BAUGHMAN: I guess what I was</p> <p>12 looking at was the amount of training to check the</p> <p>13 boiler, because it falls under security guard or</p> <p>14 it falls under different --</p> <p>15 MR. TOTH: But actually, it does</p> <p>16 not. The security guard does not check the</p> <p>17 boiler. At Fort Sanders Regional Medical Center,</p> <p>18 they have individuals that fall under the facility</p> <p>19 service technician 24 hours a day, 7 days a week.</p> <p>20 MR. BAUGHMAN: Got you.</p> <p>21 MR. TOTH: So those individuals are</p> <p>22 responsible. You may be confusing it with another</p> <p>23 location, but this location has somebody that is a</p> <p>24 certified boiler attendant 24/7.</p> <p>25 MR. BAUGHMAN: Got you. I may have</p>	<p style="text-align: right;">Page 89</p> <p>1 thought that I saw that under the duties of</p> <p>2 security guard.</p> <p>3 MR. TOTH: And if you did, that</p> <p>4 would be a mistake on my part.</p> <p>5 CHAIRMAN MORELOCK: Well, not to</p> <p>6 get this totally off track, but the other variance</p> <p>7 has a boiler guard in it.</p> <p>8 MR. TOTH: It does.</p> <p>9 CHAIRMAN MORELOCK: And that may be</p> <p>10 what you're thinking about.</p> <p>11 MR. TOTH: It does.</p> <p>12 MR. BAUGHMAN: Okay. Very good.</p> <p>13 Well, basically, what I'm looking at is -- and</p> <p>14 Fort Sanders, I'm sure, does a great job, as they</p> <p>15 understood, like, with Maury being in here</p> <p>16 earlier, it's the heart of the plan.</p> <p>17 MR. TOTH: It sure is.</p> <p>18 MR. BAUGHMAN: They understand the</p> <p>19 significance -- these boilers have been in place a</p> <p>20 long time, so not that this isn't, you know, being</p> <p>21 handled in a safe manner. I was interested in the</p> <p>22 exams and the certifications. Being that the</p> <p>23 State doesn't have any certifications, I was very</p> <p>24 interested in what Fort Sanders' certifications</p> <p>25 were.</p>

<p style="text-align: right;">Page 90</p> <p>1 MR. TOTH: I'll be more than happy 2 to answer that.</p> <p>3 MR. BAUGHMAN: Thank you.</p> <p>4 MR. TOTH: The certifications as 5 written in the Tennessee state laws, rules and 6 regulations puts the onus back on the owner-user 7 to certify their individuals. Therefore, the 8 tests that are being administered and will be 9 administered by Fort Sanders, in essence, 10 certifies those individuals per Fort Sanders 11 requirements.</p> <p>12 CHAIRMAN MORELOCK: The training 13 program serves as a certification.</p> <p>14 MR. TOTH: Absolutely.</p> <p>15 CHAIRMAN MORELOCK: With an annual 16 renewal.</p> <p>17 MR. TOTH: Absolutely.</p> <p>18 MR. BAUGHMAN: So presently, under 19 the checklist on page 39, under 29, what 20 procedures are in place for annual training, it 21 says, "Training will be contracted to provide 22 training, and a system is being developed for 23 annual retraining."</p> <p>24 MR. TOTH: Yes.</p> <p>25 MR. BAUGHMAN: So do we presently</p>	<p style="text-align: right;">Page 91</p> <p>1 have that in place, or is it still under 2 development?</p> <p>3 MR. TOTH: Very good question. The 4 renewal training, the contract that Fort Sanders 5 has is with Boisco Training Group to provide the 6 on-site training for their boiler attendants and 7 also their remote attendants.</p> <p>8 What is in the process of being 9 developed and will be launched in January of 2019 10 is a cloud-based training program that is custom 11 built for Fort Sanders. And, also, just to add 12 for the next item up, Claiborne Medical Center, 13 for that renewal of not only the remote attendant 14 training, but also for the boiler attendant 15 training.</p> <p>16 MR. BAUGHMAN: Thank you.</p> <p>17 MR. TOTH: And there are exams that 18 are required for each. They have to have a 19 passing grade of no less than 70 percent to be 20 able to serve in either of those roles.</p> <p>21 MR. BAUGHMAN: And if they don't 22 pass...</p> <p>23 MR. TOTH: If they don't pass, they 24 don't -- they can't serve in that role. I've 25 actually had clients that had to replace remote</p>
<p style="text-align: right;">Page 92</p> <p>1 attendants for their failure to pass.</p> <p>2 MR. BAUGHMAN: Very good. Do we 3 have any remote communications capabilities?</p> <p>4 MR. DEATON: Can you define "remote 5 communications," meaning other than the PBX and 6 other than the remote station --</p> <p>7 MR. TOTH: He's speaking of can you 8 see the boiler operating on line.</p> <p>9 MR. DEATON: No, you cannot.</p> <p>10 MR. BAUGHMAN: Okay.</p> <p>11 MR. DEATON: You can from the 12 central plant where it is tied in to the building 13 automation system. We have a control room there 14 in the central plant where we can have visibility 15 to that. We also have a secondary remote station 16 that's in the facility maintenance office, which 17 is in the Laurel Plaza building, which is adjacent 18 to the central plant, probably about 300 feet.</p> <p>19 MR. BAUGHMAN: Very good. Thank 20 you.</p> <p>21 MR. DEATON: Thank you.</p> <p>22 CHAIRMAN MORELOCK: Is that 23 alternate remote station in this manual?</p> <p>24 MR. TOTH: It's not treated as 25 that.</p>	<p style="text-align: right;">Page 93</p> <p>1 MR. DEATON: That particular 2 alternate station would be able to visibly see 3 everything withing the entire facility, air 4 handling units, pumps, chillers, et cetera, 5 exhaust fans.</p> <p>6 MR. TOTH: And this is fully 7 protected, password protected throughout. I made 8 sure of that.</p> <p>9 MR. BAUGHMAN: So nobody can hack 10 it. It isn't unhackable.</p> <p>11 MR. TOTH: It's unhackable.</p> <p>12 MR. BAUGHMAN: Okay. On the 13 record.</p> <p>14 MR. TOTH: That's a very dangerous 15 thing to say on the record, because somebody can.</p> <p>16 DR. HARGROVE: May I ask the other 17 guest his roles and responsibilities?</p> <p>18 MR. SWANSON: My roles 19 responsibilities, for the last 12 years, I've been 20 the second-shift boiler attendant. So I've 21 been -- originally, I was considered an energy 22 plant operator. So I've been doing the duties 23 that we've been describing, as well as performing 24 maintenance throughout the hospital, minor 25 maintenance throughout the hospital.</p>

<p style="text-align: right;">Page 94</p> <p>1 DR. HARGROVE: Thank you, sir.</p> <p>2 MR. SWANSON: That's it.</p> <p>3 MR. DEATON: And doing it well, I</p> <p>4 might add.</p> <p>5 MR. SWANSON: Thank you.</p> <p>6 CHAIRMAN MORELOCK: Any other</p> <p>7 questions or comments?</p> <p>8 (No verbal response.)</p> <p>9 CHAIRMAN MORELOCK: Hearing none,</p> <p>10 do I have a motion to approve this variance</p> <p>11 request, a new variance request, contingent on a</p> <p>12 successful site visit by the boiler unit?</p> <p>13 DR. HARGROVE: Motion to approve a</p> <p>14 new variance request.</p> <p>15 CHAIRMAN MORELOCK: And contingent</p> <p>16 on making revisions to the manual as per comments</p> <p>17 made during this boiler meeting.</p> <p>18 MR. TOTH: And can I get an</p> <p>19 understanding of what those were again?</p> <p>20 CHAIRMAN MORELOCK: I don't know</p> <p>21 that you've got any to-do -- well, other than</p> <p>22 update your checklist to show it's a new variance.</p> <p>23 MR. TOTH: There you go. I will</p> <p>24 make sure and do that, sir.</p> <p>25 CHAIRMAN MORELOCK: That's the only</p>	<p style="text-align: right;">Page 95</p> <p>1 takeaway I've got.</p> <p>2 DR. HARGROVE: And the inspection.</p> <p>3 CHAIRMAN MORELOCK: And inspection,</p> <p>4 right.</p> <p>5 MR. TOTH: Oh, and the inspection.</p> <p>6 Okay.</p> <p>7 CHAIRMAN MORELOCK: Anything else?</p> <p>8 Do I have that motion?</p> <p>9 DR. HARGROVE: Motion to approve</p> <p>10 the variance request with the contingency.</p> <p>11 MR. FOX: I'll second that.</p> <p>12 CHAIRMAN MORELOCK: Okay. Any</p> <p>13 other comments?</p> <p>14 (No verbal response.)</p> <p>15 CHAIRMAN MORELOCK: Then I'll call</p> <p>16 the question. All in favor say "aye."</p> <p>17 (Affirmative response.)</p> <p>18 CHAIRMAN MORELOCK: Negatives?</p> <p>19 Opposed?</p> <p>20 (No verbal response.)</p> <p>21 CHAIRMAN MORELOCK: Abstentions,</p> <p>22 not voting?</p> <p>23 (No verbal response.)</p> <p>24 CHAIRMAN MORELOCK: All right,</p> <p>25 gentlemen.</p>
<p style="text-align: right;">Page 96</p> <p>1 MR. TOTH: Thank you very much.</p> <p>2 CHAIRMAN MORELOCK: That will take</p> <p>3 us to our next item, which will be 18-15. Energy</p> <p>4 Conversion and Safety will present Claiborne</p> <p>5 Medical Center who is requesting a new variance</p> <p>6 for two high-pressure boilers to operate under the</p> <p>7 current rule.</p> <p>8 Any conflicts of interest on this</p> <p>9 item?</p> <p>10 (No verbal response.)</p> <p>11 CHAIRMAN MORELOCK: Okay. None</p> <p>12 noted.</p> <p>13 MR. TOTH: Thank you, Mr. Chairman.</p> <p>14 And I would like to introduce, to my</p> <p>15 right, Mr. Mike Campbell. He is the facility and</p> <p>16 safety manager at Claiborne Medical Center. And</p> <p>17 then Mr. Larry Yeary.</p> <p>18 Again, thank you so much for your</p> <p>19 time. I would like to present to you a new</p> <p>20 request for issuance for a remote variance for</p> <p>21 Claiborne Medical out of Tazewell, Tennessee.</p> <p>22 Claiborne has been around for quite a while, since</p> <p>23 1959. It's a very nice facility there.</p> <p>24 As we allude to this, Mike is</p> <p>25 responsible, totally responsible, for the boiler</p>	<p style="text-align: right;">Page 97</p> <p>1 variance that is presented to you.</p> <p>2 At CMC, we have two high-pressure</p> <p>3 boilers, Superior firetube boilers, that are</p> <p>4 operating. They both operate under the primary</p> <p>5 safety control of a Honeywell 7840. They do not</p> <p>6 have a DA. They just have a feed water tank, a</p> <p>7 Bennett feed water tank. And they operate</p> <p>8 24 hours a day, 7 days a week.</p> <p>9 What you will find is that for</p> <p>10 Claiborne Medical Center, they have a remote</p> <p>11 station that is located in the central nursing</p> <p>12 station that is on the first floor of the</p> <p>13 hospital. The boiler room is located just outside</p> <p>14 of the stairwell on the ground level. And you</p> <p>15 will see that on the site plan. It's in very</p> <p>16 close proximity to the central nursing station.</p> <p>17 The nursing station is manned 24/7 by licensed</p> <p>18 practical nurses. Those LPNs will be certified</p> <p>19 for the remote attendance requirements. Again,</p> <p>20 that nursing station is manned 24/7. Even if</p> <p>21 there are emergency codes going on, there will be</p> <p>22 somebody that has to man that station, even if the</p> <p>23 other nurses have to vacate.</p> <p>24 The boiler attendants located -- just</p> <p>25 as with the previous variance that we reviewed,</p>

<p style="text-align: right;">Page 98</p> <p>1 they have senior facility service technicians and 2 facility service technicians. Larry is one of the 3 facility service technicians that does a lot of 4 the manning of the boiler and the duties and 5 responsibilities of boiler attendant during the 6 daytime shifts.</p> <p>7 In addition to the Claiborne Medical 8 Center staff, we also operate -- would like to 9 operate under the boiler guard operations in the 10 evening and early mornings before the day shift 11 comes on. Those boiler guards, just as with any 12 other boiler attendant, is required to go through 13 the exact same training as the staff attendants 14 and pass the exam. If not, they will not be 15 authorized to man that post during those times. 16 Mike is responsible for that. He will be the one 17 to ensure that that is adhered to.</p> <p>18 Any questions? 19 CHAIRMAN MORELOCK: Okay. We have 20 no conflicts, so we've got a motion to discuss, so 21 I'm opening the floor for any questions or 22 comments.</p> <p>23 I will say, while you're thinking, 24 Mr. Toth did send us an updated organizational 25 chart. I don't know if you saw that in your</p>	<p style="text-align: right;">Page 99</p> <p>1 email, but basically, it just showed the 2 additional organization showing the nursing 3 supervisor and the LPN being the remote attendant.</p> <p>4 MR. TOTH: I do apologize for that 5 oversight. I was able to catch it during the 6 review yesterday.</p> <p>7 CHAIRMAN MORELOCK: And so we just 8 need to make sure we get that into the manual.</p> <p>9 MR. TOTH: Yes, sir. That's 10 already been done.</p> <p>11 CHAIRMAN MORELOCK: Okay. 12 What other questions or comments?</p> <p>13 MR. FOX: I've got a question.</p> <p>14 CHAIRMAN MORELOCK: Okay.</p> <p>15 MR. FOX: On the 784 controls that 16 are on this boiler, do you incorporate, also, the 17 expanded enunciation?</p> <p>18 MR. TOTH: No. No expanded 19 enunciation; however, there will be -- in this 20 case here, there will be a new -- a flame 21 amplifier installed for additional safety in the 22 case of a dynamic self-check.</p> <p>23 MR. FOX: All right. I was just 24 wondering about the expanded enunciation. When 25 the boiler goes out on low-water, it sets off an</p>
<p style="text-align: right;">Page 100</p> <p>1 alarm, do we know -- does the attendant know what 2 that boiler went out on?</p> <p>3 MR. TOTH: Well, in -- 4 MR. FOX: Or is this something that 5 you tried to come in and research to see why the 6 boiler is locked out?</p> <p>7 MR. TOTH: Right. You're 8 absolutely correct. And just like any standard 9 boiler, if it's a low-water condition, they come 10 in, they look at the actual key display and see if 11 they cannot see why it actually went on alarm. 12 They're going to have to do the responsibility of 13 troubleshooting. And they would not -- they would 14 not know that. That would be one of the items 15 that they would be trained in, to be able to 16 identify that.</p> <p>17 MR. BAUGHMAN: So there's two low 18 waters on these boilers, correct?</p> <p>19 MR. TOTH: Yes.</p> <p>20 MR. BAUGHMAN: Okay. Which one is 21 wired to the alarm?</p> <p>22 MR. TOTH: Well, it's going to be 23 the auxiliary. The auxiliary is going to be -- 24 the auxiliary -- when you have a shutdown, your 25 axillary low-water cutoff is what's going to</p>	<p style="text-align: right;">Page 101</p> <p>1 actually trip the alarm that's going to send the 2 signal.</p> <p>3 MR. BAUGHMAN: Okay. So the boiler 4 can go off on the primary alarm first.</p> <p>5 MR. TOTH: Absolutely.</p> <p>6 MR. BAUGHMAN: So the boiler goes 7 down on low water.</p> <p>8 MR. TOTH: Absolutely.</p> <p>9 MR. BAUGHMAN: Nobody knows it.</p> <p>10 MR. TOTH: Again, we're sitting 11 there putting ourselves in the situation where it 12 doesn't -- you know, if the primary goes out, 13 okay, the primary low-water cutoff, and it doesn't 14 shut the boiler down, the auxiliary is responsible 15 for tripping the boiler and has the manual reset.</p> <p>16 MR. BAUGHMAN: Well, let's run the 17 scenario backwards.</p> <p>18 MR. TOTH: Absolutely.</p> <p>19 MR. BAUGHMAN: The secondary 20 doesn't work --</p> <p>21 MR. TOTH: Okay.</p> <p>22 MR. BAUGHMAN: -- and the primary 23 goes down and does not have the alarm on it. I 24 guess my question would be why do you not put the 25 alarm on the primary instead of the secondary?</p>

<p style="text-align: right;">Page 102</p> <p>1 MR. TOTH: Usually -- it's usually 2 the -- there is an alarm. It's an audible. It's 3 just the actual tripping of the boiler for a 4 manual reset. In this case here, the normal 5 installation is going to be to put it on your 6 auxiliary low-water cutoff.</p> <p>7 MR. BAUGHMAN: Well, I disagree. I 8 always put the alarms on the --</p> <p>9 MR. TOTH: And that's fine. That's 10 fine. But --</p> <p>11 MR. BAUGHMAN: Yeah.</p> <p>12 MR. BAILEY: Whoa. We can't have 13 two people talking.</p> <p>14 MR. TOTH: Okay.</p> <p>15 MR. BAILEY: One talk, ask the 16 question, and then you respond. It's back and 17 forth. It keeps the record clean.</p> <p>18 MR. BAUGHMAN: Go ahead, Mr. Toth.</p> <p>19 MR. TOTH: Please...</p> <p>20 MR. BAUGHMAN: So it doesn't -- if 21 the boiler goes off in a low-water condition, it 22 doesn't behoove anybody to wait for it to go down 23 on the secondary to trip the alarm. So I guess my 24 question would be why would you decide to put it 25 on the secondary and not the primary?</p>	<p style="text-align: right;">Page 103</p> <p>1 MR. TOTH: Okay. First, it's 2 always best that it's the normal installation. 3 That's the recommended installation from the 4 manufacturer. Now --</p> <p>5 MR. BAUGHMAN: From Superior? I'm 6 sorry.</p> <p>7 MR. TOTH: But here's the situation 8 that you're running into. If I flip that around 9 and said you put it on the primary, and the 10 primary fails, you're putting a scenario, 11 Mr. Baughman, in place that says that we have no 12 controls that are working.</p> <p>13 We understand -- and nobody 14 understands more than I do -- that accidents occur 15 because of multiple failures, not one. So what we 16 put into place within this organization here, CMC 17 and all the other clients, is to ensure that not 18 only we have a system in place, but we are 19 practicing that, and how are we practicing that. 20 We're practicing that with putting forth proper 21 testing of our controls and safety devices.</p> <p>22 MR. BAUGHMAN: So my follow-up to 23 that would be is that you -- protocol would be 24 that you have an alarm on both that enunciates 25 back to shut it off at the remote station, not</p>
<p style="text-align: right;">Page 104</p> <p>1 just one or the other. The alarm contacts are in 2 the primary control, and they are in the 3 secondary.</p> <p>4 MR. TOTH: Right.</p> <p>5 MR. BAUGHMAN: So same thing with 6 the flame safeguard. It enunciates on multiple 7 types of failures --</p> <p>8 MR. TOTH: Absolutely.</p> <p>9 MR. BAUGHMAN: -- as the low-waters 10 should. Now, it's not part of our variance 11 requirement. I'm just saying from a safety 12 standpoint by getting an understanding of this.</p> <p>13 MR. TOTH: I agree.</p> <p>14 CHAIRMAN MORELOCK: All right. Who 15 is the inspector?</p> <p>16 MR. TOTH: Lee Yarborough.</p> <p>17 MR. BAUGHMAN: With?</p> <p>18 MR. DEATON: Travelers.</p> <p>19 CHAIRMAN MORELOCK: But I guess it 20 goes with saying these are valid comments, but we, 21 as a board, we don't dictate how the manufacturer 22 designs their boiler equipment. It does have to 23 meet recognized and accepted standards, as well as 24 standards required by Tennessee law and Rule 800, 25 but -- it's a good conversation, gentlemen, but</p>	<p style="text-align: right;">Page 105</p> <p>1 we're not going to promulgate any of that.</p> <p>2 MR. BAUGHMAN: Right. Sure. So 3 getting back to page 3, where we've got the 4 enunciation panel again for the remote station, 5 again, under the panel, it says "Note: Mounted at 6 security station in Eastwing Hospital Building."</p> <p>7 MR. TOTH: I do apologize for that. 8 And that's what you were probably alluding to. 9 The -- this diagram here, obviously, is a 10 simulation that's put together that showed when 11 both locations were put together. And I'm glad 12 you brought that up. It's a simple change. Where 13 is it located at? As I alluded to before and I'll 14 make that editorial change, it's located at the 15 central nurses station.</p> <p>16 MR. BAUGHMAN: Thank you.</p> <p>17 MR. TOTH: But I do appreciate you 18 bringing that to my attention.</p> <p>19 MR. BAUGHMAN: Absolutely. Just 20 attention to details.</p> <p>21 On page 7, the first item, d), "When 22 the alarm condition on the effected -- or maybe -- 23 "'affected' boiler is cleared, the boiler 24 attendant will need to report to the remote 25 station to reset the emergency stop button by</p>

<p style="text-align: right;">Page 106</p> <p>1 inserting the button key and pulling out the 2 mushroom button." 3 So the remote station attendant 4 cannot reset the reset button; the boiler 5 attendant has to come back to the remote station 6 themselves? 7 MR. TOTH: That is the process, 8 yes. 9 MR. BAUGHMAN: Okay. And what is a 10 "button key"? 11 MR. TOTH: It's an e-stop key that 12 you have to be able to reset the e-stop. 13 MR. BAUGHMAN: Okay. 14 MR. TOTH: Have you never seen one? 15 MR. BAUGHMAN: Oh, yeah. I just 16 didn't really see that on this panel, and you said 17 this is a simulated panel, so I was kind of going 18 over the details on the key in it. I didn't see a 19 place to put the key on that panel. 20 MR. TOTH: Well, I'll make sure 21 that when we actually make the panel, if it 22 satisfies you, I will make sure that an actual 23 photograph of the key is -- 24 MR. BAUGHMAN: Yeah, I'm good. I 25 just wanted to make sure I had a good</p>	<p style="text-align: right;">Page 107</p> <p>1 understanding. So the remote station attendant, 2 the LPN at the nurses station cannot reset it 3 herself. The attendant has to come back, reset it 4 himself, and then go back to the boiler room to 5 restart the boiler. 6 MR. TOTH: Yes. Either that or if 7 there is a second boiler attendant that is on 8 site, they can communicate and take care of that. 9 MR. BAUGHMAN: That's great. Thank 10 you. 11 So the boilers themselves, you've 12 seen the boilers. So there's a picture of the 13 boilers, of these Superior boilers. And the one 14 on the right, which would be... 15 MR. TOTH: Boiler 1. 16 MR. BAUGHMAN: Okay. So the one on 17 the right is actually under Boiler 2, but it's 18 actually Boiler Number 1. 19 MR. TOTH: They're photographed how 20 they sit in the boiler. 21 MR. BAUGHMAN: I got you. Well, I 22 was just taking it under the Boiler 2 and the 23 pictures under Boiler 2, but it's not -- the 24 picture under Boiler 2 is actually Boiler 25 Number 1?</p>
<p style="text-align: right;">Page 108</p> <p>1 MR. TOTH: (Nods head.) 2 MR. BAUGHMAN: Okay. Thank you. 3 So this boiler would fall under the requirements 4 of CSD-1. 5 MR. TOTH: Yes. 6 MR. BAUGHMAN: And being that that 7 input is between the 400,000 and 2,500,000, it 8 would dictate that there be -- 9 MR. TOTH: Well -- say that again. 10 MR. BAUGHMAN: 400,000 and 11 2,500,000. 12 MR. TOTH: 12,500,000. 13 MR. BAUGHMAN: Well, this is for 14 this particular gas train. I'm itemizing it for 15 this particular section. 16 MR. TOTH: Okay. 17 MR. BAUGHMAN: CSD-1 covers up 18 through 12,5, but I'm talking about the specific 19 section of CSD-1, which is 400,000 to 2,500,000. 20 MR. TOTH: Okay. 21 MR. BAUGHMAN: Which would dictate 22 that on the gas train itself, there should be two 23 shut-off cocks -- 24 MR. TOTH: Yes. 25 MR. BAUGHMAN: -- which I don't see</p>	<p style="text-align: right;">Page 109</p> <p>1 on the gas train. The larger boiler does, and you 2 can see them clearly identified. There's got to 3 be a test cock -- not a test cock, I'm sorry -- a 4 manual shut-off cock the last thing before it 5 enters the gas train. 6 MR. TOTH: So a manual shut-off -- 7 are you talking about a safety shut-off valve? 8 MR. BAUGHMAN: No. A manual 9 shut-off valve. Not electronic, but a safety. 10 MR. TOTH: I see what you're 11 saying. 12 MR. BAUGHMAN: So that's identified 13 on the larger boiler. The smaller boiler it is 14 not. I'm looking at the steam header outlet which 15 shows what appears to be screwed piping. 16 MR. TOTH: Uh-huh. But now we're 17 going -- right now you're going into something 18 that is covered under inspection. 19 MR. BAUGHMAN: Yes. 20 MR. TOTH: Okay. 21 MR. BAUGHMAN: So what I'm getting 22 at is that the boiler doesn't quite meet the code 23 requirements of the day. 24 MR. TOTH: I beg to differ. 25 MR. BAUGHMAN: Okay.</p>

<p style="text-align: right;">Page 110</p> <p>1 MR. TOTH: Because that particular 2 boiler has the proper piping based on the design 3 of Boiler Number 1.</p> <p>4 MR. BAUGHMAN: So will leave this, 5 of course, is contingent upon the inspection, but 6 in taking this on the computer and expanding the 7 pictures out, there's a closer look that needs to 8 be made on that boiler. Let me say that.</p> <p>9 CHAIRMAN MORELOCK: But I think the 10 point being made here is installation is not part 11 of the variance request.</p> <p>12 MR. BAUGHMAN: Sure. I just 13 wanted --</p> <p>14 CHAIRMAN MORELOCK: That's an 15 installation inspection.</p> <p>16 MR. BAUGHMAN: Yeah.</p> <p>17 MR. TOTH: So what -- and if I may 18 add to that, the process of looking at an 19 installation of a boiler that not only has been in 20 service for quite a while, that has not been 21 changed out, that has been approved by a certified 22 and licensed boiler inspector with the state of 23 Tennessee, I think is -- it's a nonfactor, and I 24 think that that -- that that's a little bit of out 25 of line. I'll just tell you.</p>	<p style="text-align: right;">Page 111</p> <p>1 MR. BAUGHMAN: Okay. Well, from my 2 end of it -- and we know in the inspections that 3 we're all human beings and things get passed that 4 don't necessarily meet the code of the day, and I 5 think you would agree to that for the number of 6 piece of equipment that we've seen over the years. 7 I just want to make sure that this is contingent 8 upon the inspection and that those items that I 9 have pointed out are valid items. And so we'll 10 just add that in the contingency of the 11 inspection. So we both take exception to each 12 other.</p> <p>13 CHAIRMAN MORELOCK: Well, but, 14 Mr. Baughman, with all due represent, that's 15 something that needs to be taken up with the 16 Boiler Unit, not the Tennessee Board.</p> <p>17 MR. BAUGHMAN: Yes. Sure. And I 18 just wanted to make note of it for the record.</p> <p>19 CHAIRMAN MORELOCK: It's duly 20 noted, but --</p> <p>21 MR. BAUGHMAN: Absolutely. It 22 doesn't fall into play with the variance --</p> <p>23 CHAIRMAN MORELOCK: It's not part 24 of the checklist. It's not part of the variance 25 process at all.</p>
<p style="text-align: right;">Page 112</p> <p>1 MR. BOWERS: It has nothing to do 2 with what we're doing today.</p> <p>3 MR. TOTH: Correct.</p> <p>4 CHAIRMAN MORELOCK: That's correct.</p> <p>5 MR. BAUGHMAN: And I appreciate 6 that, and I appreciate taking the time. I wanted 7 to make sure that when we do the inspection, that 8 those items do get looked at, duly noted.</p> <p>9 MR. ROBINSON: (Indicating.)</p> <p>10 CHAIRMAN MORELOCK: Yes, 11 Mr. Robinson?</p> <p>12 MR. ROBINSON: Mr. Chairman, now 13 that the genie is out of the bottle, can Gene ask 14 a question?</p> <p>15 CHAIRMAN MORELOCK: Yes.</p> <p>16 MR. ROBINSON: Just two questions 17 regarding the guard. Is he subcontracted? And if 18 he's rotated out, he's trained appropriately, 19 right?</p> <p>20 MR. TOTH: Yes.</p> <p>21 MR. ROBINSON: And you said you had 22 a key on the control panel.</p> <p>23 MR. TOTH: There's a key available.</p> <p>24 MR. ROBINSON: Can you also lock it 25 from actuation?</p>	<p style="text-align: right;">Page 113</p> <p>1 MR. TOTH: No.</p> <p>2 MR. ROBINSON: Very well.</p> <p>3 MR. TOTH: It's a reset key.</p> <p>4 CHAIRMAN MORELOCK: Okay. Any 5 other questions or comments? (No verbal response.)</p> <p>6 CHAIRMAN MORELOCK: Okay. Hearing 7 none, do I have a motion for approval of variance 8 contingent on a successful site visit by the 9 Boiler Unit and the Chief Inspector, along with 10 incorporating comments from the Board during the 11 review of this variance manual?</p> <p>12 DR. HARGROVE: Motion for approval 13 for this variance.</p> <p>14 CHAIRMAN MORELOCK: And do I have a 15 second?</p> <p>16 MR. BOWERS: Second.</p> <p>17 CHAIRMAN MORELOCK: Okay. I have a 18 second. Last call for comments. (No verbal response.)</p> <p>19 CHAIRMAN MORELOCK: Hearing none, 20 I'm going to call the question. 21 All those this favor, say "aye." (Affirmative response.)</p> <p>22 CHAIRMAN MORELOCK: Opposed?</p>

<p style="text-align: right;">Page 114</p> <p>1 (No verbal response.)</p> <p>2 CHAIRMAN MORELOCK: Abstentions,</p> <p>3 not voting?</p> <p>4 (No verbal response.)</p> <p>5 CHAIRMAN MORELOCK: Gentlemen, you</p> <p>6 have an approved contingent variance.</p> <p>7 MR. TOTH: Thank you, gentlemen.</p> <p>8 CHAIRMAN MORELOCK: Thank you.</p> <p>9 All right. So that concludes our new</p> <p>10 business. So moving on to Item 9, Open Discussion</p> <p>11 Items. The tentative dates for 2019 for the</p> <p>12 Tennessee Board of Boiler Rules meetings are</p> <p>13 listed here as Wednesday, March the 13th;</p> <p>14 Wednesday, June the 12th; Wednesday, September the</p> <p>15 18th; and Wednesday, December the 11th.</p> <p>16 It's not a voted action. It's just</p> <p>17 information. So if the board members have</p> <p>18 conflicts, let's all talk with the Boiler Unit,</p> <p>19 and we'll make sure we can try to accommodate</p> <p>20 those so that we can always maintain a quorum.</p> <p>21 And so then, based on our approval,</p> <p>22 our next --</p> <p>23 MS. JEFFERSON: Chairman?</p> <p>24 CHAIRMAN MORELOCK: Yes?</p> <p>25 MS. JEFFERSON: Chairman, before</p>	<p style="text-align: right;">Page 115</p> <p>1 you move on, if there are any questions or</p> <p>2 comments or if you do have any conflicts with</p> <p>3 those dates, if you'll let our Board secretary --</p> <p>4 I'd just like to ask Lynn, if she's here, the</p> <p>5 Board Secretary to stand, as well as our</p> <p>6 assistant, Ebony Paige.</p> <p>7 If you-all have any comments, feel</p> <p>8 free to email them, and they'll be happy to help</p> <p>9 coordinate and get a specific date that's</p> <p>10 convenient for everyone.</p> <p>11 DR. HARGROVE: Mr. Chairman, for me</p> <p>12 there's a likelihood of a June 12 attendance,</p> <p>13 which is key travel time.</p> <p>14 CHAIRMAN MORELOCK: Okay. Is that</p> <p>15 a for sure, or possible?</p> <p>16 DR. HARGROVE: That's usually an</p> <p>17 international trip for me, so highly likely.</p> <p>18 CHAIRMAN MORELOCK: Okay. Well, so</p> <p>19 we'll check with Mr. Henry as well. And, you</p> <p>20 know, we have six. As long as we can maintain a</p> <p>21 quorum, we can accommodate that, so...</p> <p>22 Any comments about those proposed</p> <p>23 dates?</p> <p>24 (No verbal response.)</p> <p>25 CHAIRMAN MORELOCK: Okay. Is</p>
<p style="text-align: right;">Page 116</p> <p>1 Doris --</p> <p>2 Doris, we're going to give you the</p> <p>3 floor for your update on the computer system.</p> <p>4 MS. BARNETT: Yes.</p> <p>5 MS. JEFFERSON: And while she's</p> <p>6 coming, I would just like to say that Doris is a</p> <p>7 new employee with the WRC Division. This is her</p> <p>8 first time presenting to this particular Board.</p> <p>9 And what Doris brings to the Division is that she</p> <p>10 has a vast amount of experience. She's been</p> <p>11 working with boilers, elevators, amusement devices</p> <p>12 for years, and she has knowledge about all of our</p> <p>13 computer systems.</p> <p>14 What she's going to do is help us to</p> <p>15 move forward with a new computer system. We</p> <p>16 currently have one, but it's antiquated. Our</p> <p>17 processes are antiquated. So she's going to</p> <p>18 assist us as we move forward with our new computer</p> <p>19 system. And she'll talk about those things.</p> <p>20 In addition, what she's going to do</p> <p>21 once we complete our computer system, she's going</p> <p>22 to help us to perform quality assurance on each</p> <p>23 one of our units within the division so that we</p> <p>24 can prevent delinquencies as much as we can,</p> <p>25 reduce those. Also, so we will have some alerts</p>	<p style="text-align: right;">Page 117</p> <p>1 on the computer system so we won't have issues</p> <p>2 going forward.</p> <p>3 CHAIRMAN MORELOCK: Very good.</p> <p>4 MS. BARNETT: Thank you, Kim, for</p> <p>5 that great introduction.</p> <p>6 As stated, I'm Doris Barnett. I</p> <p>7 actually have a long history with the Division, as</p> <p>8 also stated, and enjoy working with them. I was</p> <p>9 the project manager for the Jurisdiction Online</p> <p>10 project, which is our new computer system.</p> <p>11 We brought on board, already, the</p> <p>12 elevators and amusement devices systems.</p> <p>13 Elevators came on board six months ago. The</p> <p>14 amusement devices came on board last week. So</p> <p>15 far, we've had no major issues with either of</p> <p>16 those and the units are excited to be working with</p> <p>17 the new project.</p> <p>18 We've started our focus on the</p> <p>19 boilers piece of it. We're doing the initial,</p> <p>20 basically, just reviews and discussions at this</p> <p>21 point. We haven't actually done any true digging,</p> <p>22 although we have the minimum-requirements list</p> <p>23 that was created some time ago. We're going to</p> <p>24 review that and bring it back and make sure that</p> <p>25 it's still relevant.</p>

<p style="text-align: right;">Page 118</p> <p>1 We have a dictum to go ahead and make 2 sure that we are going to perform timely 3 inspections. And we're going to have an ability 4 to track any code violations. And that will be 5 all part of the new system once we get that up. I 6 think this is an exciting process. We're looking 7 forward to the new system. And, of course, 8 throughout, I'll be working with the staff to make 9 sure that we get all our needs and wishes heard, 10 at least, and get everything that we can brought 11 into our new system. Which, at this time, we 12 don't have a timeline for that. We're estimating 13 it will take six months from now to bring it 14 online and be active in Jurisdiction Online. 15 Any questions? 16 CHAIRMAN MORELOCK: I have a 17 couple. 18 MS. BARNETT: Okay. 19 CHAIRMAN MORELOCK: One being, how 20 will the new computer system handle the two-month 21 grace period? 22 MS. BARNETT: That will be designed 23 as part of the system. 24 CHAIRMAN MORELOCK: Okay. 25 MS. BARNETT: One of the things we</p>	<p style="text-align: right;">Page 119</p> <p>1 have -- when we sit down to discuss with the 2 vendor and we tell them our requirements, that is 3 one of them. 4 CHAIRMAN MORELOCK: Okay. And my 5 second question is we've always struggled between 6 boilers unfired pressure vessels -- in the past, 7 we've been very limited on units of measure for 8 those relief devices. So what will the new 9 computer system -- will it expand that to have 10 more choices for units of measure for the relief 11 devices? 12 MS. BARNETT: My understanding is 13 that it will, but we would really work with the 14 Unit and sit down with the Jurisdiction Online 15 people. We would make sure they are aware of all 16 those limitations and requirements and have those 17 covered. Because if we don't tell them, they 18 can't do it. 19 CHAIRMAN MORELOCK: Okay. Very 20 good. 21 MR. BOWERS: I've been using 22 Jurisdiction Online for several years. Same with 23 Eugene there. And there's other states that are 24 using it. It would be good to -- I think Georgia 25 uses it, and North Carolina -- look how they --</p>
<p style="text-align: right;">Page 120</p> <p>1 you know, they've had it for several years, to see 2 how to help you in your transition period. 3 MS. BARNETT: We will probably be 4 looking at that as well. I do know our chief has 5 already talked to some of them and gotten some 6 feedback on how they are working with the systems. 7 One of the things I am particularly 8 excited about is the ability to have the online 9 payment portal so that people out in the general 10 community who have these boilers and pressure 11 vessels are able to pay their invoices without 12 having to go through mailing the check and waiting 13 for it to clear. They'll be able to do it 14 immediately. 15 CHAIRMAN MORELOCK: Thank you. 16 MR. ROBINSON: (Indicating.) 17 CHAIRMAN MORELOCK: Mr. Robinson? 18 MR. ROBINSON: Mr. Chairman, the 19 first question you asked about, as far as how JOL 20 is going to give you information regarding the 21 expiration date, currently, what happens is on my 22 portal screen, if the expiration date is 23 surpassed, it turns red, indicating that I have a 24 delinquency. 25 As far as 60 days out, if in the</p>	<p style="text-align: right;">Page 121</p> <p>1 event I wanted to search for work in my territory, 2 60 days, 120 days, whatever time I wanted to put 3 on it, I can put that number in. It will search 4 infinitely my entire territory and bring that 5 information to me. 6 CHAIRMAN MORELOCK: Okay. 7 MR. ROBINSON: And then I think you 8 had a -- your other question, your last 9 question... 10 CHAIRMAN MORELOCK: Units of 11 measure. 12 MR. ROBINSON: CFNs, BTUs, pounds, 13 it has a pull-down that you can select your safety 14 valves to match that criteria. 15 CHAIRMAN MORELOCK: Well, and so 16 we've struggled a little bit with unfired pressure 17 vessels in the fact that with the approval of a 18 UG140 -- 19 MR. ROBINSON: Yes, sir. 20 CHAIRMAN MORELOCK: -- 140A will 21 actually allow you to put a regulator pressure 22 vessel into service with no relief device. 23 MR. ROBINSON: Okay. 24 CHAIRMAN MORELOCK: But when we 25 tried to register with the State, it demands a</p>

<p style="text-align: right;">Page 122</p> <p>1 value in that relief device box. And so you might 2 need a caveat in there to say, you know, no relief 3 device required for UG140A or something like that. 4 MR. ROBINSON: And that's a good 5 point. You bring up a good point. One of the 6 things that comes to recollection is that on a 7 ruptured disk, there is a difficulty in putting in 8 the information for a ruptured disk, just to let 9 you know. 10 CHAIRMAN MORELOCK: Yes. 11 MS. BARNETT: And these are all 12 very good points. We'll need to make sure that we 13 cover those when we discuss the requirements with 14 the Jurisdiction Online, make sure that anything 15 like this does not get overlooked or not 16 completed. 17 CHAIRMAN MORELOCK: Yes. Mary 18 Snyder is our gatekeeper for all of our records, 19 and she'll call me up and say, "What am I supposed 20 to do with this?" Because, you know, in the past, 21 it demanded some value in there. And so this will 22 be a great opportunity to give us some more 23 options. 24 MS. BARNETT: I think so. 25 CHAIRMAN MORELOCK: All right. Any</p>	<p style="text-align: right;">Page 123</p> <p>1 other questions? 2 MR. BAUM: (Indicating.) 3 CHAIRMAN MORELOCK: Yes? 4 MR. BAUM: Scott Baum with Hartford 5 Steam Boilers. For companies who aren't using 6 that, you mentioned that customers could pay 7 online. Will they still be able to do that even 8 if -- let's say Hartford Steam Boiler doesn't -- 9 they're reporting the old way, which is my 10 understanding -- 11 MS. BARNETT: That's an excellent 12 question. Right now, Hartford Steam Boilers is 13 not on board with Jurisdiction Online. And the 14 vendor, Jurisdiction Online people, have been 15 discussing that with them. Hartford has stated 16 they will not be, and we'll need to work with 17 Jurisdiction Online to make sure their data gets 18 entered so that the invoices can be paid through 19 Jurisdiction Online. 20 As long as the information is there, 21 we can have people pay through there. Just that 22 little sticky point, we'll need to make sure that 23 the information gets in there properly. 24 CHAIRMAN MORELOCK: Okay. 25 MR. TOTH: (Indicating.)</p>
<p style="text-align: right;">Page 124</p> <p>1 CHAIRMAN MORELOCK: Yes, Mr. Toth? 2 MR. TOTH: Just for curiosity's 3 sake, what is the rate of charge for the online 4 payment? 5 MS. BARNETT: 2.35 percent or 0.95 6 if you're using a check. Which the 0.95 actually 7 is -- if you're using a check, the 0.95 is 8 basically what you would be paying if you wrote a 9 check and mailed it. 10 MR. TOTH: Right. And just to 11 follow up, do they allow automatic withdrawal? 12 MS. BARNETT: Automatic 13 withdrawal? 14 MR. TOTH: From the bank. Like, 15 it's called ACH. Do they -- 16 MS. BARNETT: They do treat it as 17 ACH, yes. 18 MR. TOTH: -- allow that? And do 19 they charge for that also? 20 MS. BARNETT: (No verbal response.) 21 MR. TOTH: Because -- the reason 22 why I ask that because a lot of outfits out there 23 won't charge for bank transfer but they will for a 24 credit card and they will for a check. I'm just 25 curious because that may be a question that you</p>	<p style="text-align: right;">Page 125</p> <p>1 guys will have. 2 MS. BARNETT: The way the portal is 3 set up, it will charge for any check process or 4 for any debit or credit cards. We have a certain 5 number of credit cards that we use. 6 MR. TOTH: I think it's wonderful. 7 It's something that we talked about 15 years ago. 8 It only takes that long. 9 CHAIRMAN MORELOCK: Any other 10 questions or comments? 11 MS. JEFFERSON: When is the Boiler 12 Unit scheduled to have their first discussions, 13 their initial discussions with the vendor? 14 MS. BARNETT: The first discussion 15 with Jurisdiction Online is scheduled for 16 January 14th, 15th, and 16th. Three days, they'll 17 be here. 18 CHAIRMAN MORELOCK: So what's the 19 implementation schedule look like? 20 MS. BARNETT: As I stated earlier, 21 it will probably be up to six months out. We 22 don't have a set timeline right now because, of 23 course, it will be contingent on, one, all the 24 requirements that we have, any special needs that 25 we have. But I am anticipating it will be June.</p>

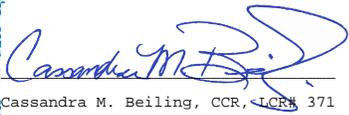
Page 126

1 CHAIRMAN MORELOCK: So if we're
 2 looking amount June-July time frame, maybe we
 3 could leave this item on our discussion list and
 4 let you provide updates in March and June? Would
 5 that be okay?
 6 MS. BARNETT: That will be fine.
 7 CHAIRMAN MORELOCK: Okay. Very
 8 good. Anything else?
 9 (No verbal response.)
 10 CHAIRMAN MORELOCK: Okay. Well,
 11 that takes us to Item 10, which is our next
 12 meeting. It will be March the 13th at 9:00 a.m.
 13 here at the Department of Labor. And if there's
 14 no objection, we'll go to Item 11 and adjourn.
 15 MS. JEFFERSON: And before we do
 16 that, I would just like to thank the Board again
 17 for your leadership, for your service. We know
 18 you-all do this free of charge, and you offer us
 19 your expertise.
 20 And we give you what we can, you
 21 know, as a State entity, but we know that that's
 22 little compared to what you-all provide to us.
 23 And so we just want to say thank you. I hope
 24 you-all have a happy holiday.
 25 And, again, on your collaboration

Page 127

1 with the Department, with the Division, as well as
 2 the Unit, the Boiler Unit is something that we --
 3 it's just intangible. So we really appreciate
 4 what you-all do and we don't want you-all to take
 5 that lightly. We really appreciate you.
 6 CHAIRMAN MORELOCK: Well, to
 7 reciprocate, we're very thankful that the State of
 8 Tennessee allows us to have a boiler board. And
 9 so we don't take that lightly that -- it's funny.
 10 We've had some folks come and think we're just a
 11 big rubber stamp and they leave, like, whoa, I
 12 wasn't expecting all that.
 13 But in closing, as we adjourn, I
 14 thank you-all for coming. I know you're taking
 15 time out of your day to come in here. I hope it's
 16 constructive. I hope it's helpful. I hope it's
 17 very good at relationship building.
 18 And we also wish you-all a very Merry
 19 Christmas, happy New Year, happy holidays, and
 20 we'll see you again in March. So travel safe if
 21 you're having to go travel today.
 22
 23 END OF THE PROCEEDINGS.
 24
 25

Page 128

1 C E R T I F I C A T E
 2 STATE OF TENNESSEE)
 3 COUNTY OF WILLIAMSON)
 4 I, Cassandra M. Beiling, a Notary Public
 5 in the State of Tennessee, do hereby certify:
 6
 7 That the within is a true and accurate
 8 transcript of the proceedings taken before the
 9 Board and the Chief Inspector or the Chief
 10 Inspector's Designee, Tennessee Department of
 11 Labor & Workforce Development, Division of
 12 Workplace Regulations and Compliance, Boiler Unit,
 13 on the 12th day of December, 2018.
 14
 15 I further certify that I am not related to
 16 any of the parties to this action, by blood or
 17 marriage, and that I am in no way interested in
 18 the outcome of this matter.
 19
 20 IN WITNESS WHEREOF, I have hereunto set my
 21 hand and seal this 13th day of March, 2019.
 22
 23 
 24 
 25 Cassandra M. Beiling, CCR, LCR# 371
 Notary Public State at Large
 My commission expires: 3/15/2020

<hr/> 0 <hr/>	16th 125:16	205 18:17	510 30:19 31:21 35:1
0.95 124:5,6,7	18 18:20,22	206 18:24	539 14:7
02 54:24 76:7	18-08 3:17 10:14	21 18:23 20:10	54 12:22
0800-03-03-.08(11) 51:14	18-10 16:16	24 51:25 88:19 97:8	54-day 22:11,15
<hr/> 1 <hr/>	18-11 3:19 27:3	24/7 56:24 60:12,25 71:3,5 88:24 97:17,20	56 14:24
1 28:7 29:4 46:1 52:22 55:25 59:22,24 66:18 107:15,18,25 110:3	18-12 51:11	26th 10:2	566 29:12
1,341 14:6	18-13 3:20 69:18	28 23:3	570 30:20 31:21
1,774 29:20	18-14 9:20	29 90:19	580 46:20 59:25 60:1
1,880 14:8	18-15 3:21 96:3	<hr/> 3 <hr/>	581 46:20
10 29:8 30:18 31:9,10, 11 38:6,7 126:11	18th 114:15	3 9:11 46:1 77:16 105:3	<hr/> 6 <hr/>
100 23:6	19 3:13 18:23	3,258 29:20	6 15:12
1000 55:16 58:23 67:7	1959 96:23	300 92:18	60 120:25 121:2
106 22:9	197 18:24	302 18:20	61 29:12
11 14:24 126:14	1988 65:19	303 29:9	66 27:25 28:7 29:11
115 14:23	1989 70:14,22 72:9,14, 22 74:7 75:18,23	31 14:10	68-122-110 25:2 32:14
11th 114:15	19th 10:9 12:2	35 47:20,22	<hr/> 7 <hr/>
12 22:19 93:19 115:12	<hr/> 2 <hr/>	350 59:24	7 10:8 15:13 52:1,14 63:3 88:19 97:8 105:21
12,5 108:18	2 46:1 52:4,25 53:6 56:1,2 67:6 107:17,22, 23,24	360-degree 24:6	70 91:19
12,500,000 108:12	2,500,000 108:7,11,19	365 61:1	70,135 14:6
12-hour 71:10	2,775 14:4	37118 2:6	700-something 37:20
120 121:2	2.35 124:5	39 90:19	780 36:17,19,22 38:10 39:11 40:22 70:18
126 29:10	20 18:23 31:9,14 33:24 47:20,22 86:4,12,13,14, 20 88:1	<hr/> 4 <hr/>	780-2-11-.04(22) 70:19
12th 114:14	20-minute 88:9	4 12:1 83:22 85:25 86:12	784 99:15
13 3:24	2010 31:3	40 14:25 18:17 20:9	7840 76:3 97:5
13th 10:14 114:13 126:12	2017 20:7	400 66:22	7:00 62:18,19
140A 121:20	2018 3:13 14:13 17:13 18:4,8,16 20:8,13 22:3 27:14 28:5 29:6,12,14 30:5,14 31:10 48:13	400,000 108:7,10,19	<hr/> 8 <hr/>
14th 125:16	2019 3:22,24 9:23 10:6 18:5,9,10,18,21,25 22:3,7 29:13 30:6,14 31:5,11 35:15 48:24 91:9 114:11	4000 55:16 59:16	8 14:23 16:15 62:11 85:24
15 30:19 125:7		<hr/> 5 <hr/>	8,150 14:5
150 23:6		5 13:24 15:12 30:18 62:10,12	800 66:22 70:19 104:24
159 18:20 20:10		5,375 14:4	8th 12:4
15th 125:16		50 29:20	

9	actuality 83:4	78:18,20,25 82:16 83:17 84:13 85:7,9,21 100:1,11,21 101:1,4,23, 25 102:2,23 103:24 104:1 105:22	appearing 72:24
9 114:10	actuation 112:25		appears 109:15
96 20:13	add 9:15,17 25:15 38:9 68:2 91:11 94:4 110:18 111:10	alarms 52:11 56:25 57:10 66:12,14 78:15 79:3 84:24 85:4,5,11,15 102:8	appendices 71:9 76:15
9:00 126:12	added 10:5 25:6,8 56:5	alerts 116:25	Appendix 52:19,20 55:7 56:17 59:18 60:6 63:5,6,9,10 88:6
A	addition 98:7 116:20	alkylation 17:15,25	applaud 74:12
A-LEVEL 24:19	additional 10:15 26:14 29:6 50:21 71:15 99:2, 21	Allied 2:5	application 41:14
a.m. 126:12	additions 9:12	allowed 20:25	applies 41:17
ability 58:25 118:3 120:8	address 40:2	allude 71:8 96:24	approach 27:17 32:10 37:2 41:17
absolutely 81:14 90:14,17 100:8 101:5,8, 18 104:8 105:19 111:21	addressed 8:6 88:5	alluded 73:15 105:13	appropriately 112:18
abstention 69:7	adhered 98:17	alluding 72:16 105:8	approval 3:13 12:2,3 13:12 25:12 68:15 113:8,13 114:21 121:17
abstentions 11:22 13:19 26:21 51:4 69:6 95:21 114:2	adjacent 92:17	alternate 92:23 93:2	approvals 39:5 68:8
accept 11:9,12 13:2,4 26:9	adjourn 126:14 127:13	America 27:12	approve 25:22 38:14 50:19 54:11,12 68:21 94:10,13 95:9
accepted 37:2 104:23	Adjournment 3:25	amount 30:13 48:8 88:12 116:10 126:2	approved 11:25 13:22 15:2,3,4 26:25 39:2 69:10 73:13 110:21 114:6
accidents 103:14	administered 90:8,9	amplifier 99:21	approximately 59:23
accommodate 114:19 115:21	Adoption 3:12 9:11	amusement 116:11 117:12,14	APS 44:1
accomplish 46:25	advance 22:19	analysis 17:17,22 32:22 45:12	area 21:4 37:4 71:2
accomplished 35:22	advocate 65:13	and/or 47:2	assembled 79:11,14 80:9
accordance 20:11	affected' 105:23	Annotated 25:2 32:14	assembly 79:17,19,21 80:17,18
ACH 124:15,17	affirmative 11:20 13:14 16:11 26:18 51:1 69:3 95:17 113:24	announcement 3:23 4:15 8:18	assessment 27:17 29:3
action 75:2 114:16	age 29:15 58:3	announcements 3:11 4:14 7:20 9:7	assessments 17:14
activate 78:20	agenda 3:12 4:9 9:11, 13 10:3,5,6,16,21 11:1, 10,25 15:16 67:10	annual 17:19 90:15,20, 23	assigned 11:4 19:3 20:2 52:18
activated 82:15	aging 60:8	annually 29:2	assist 35:3 77:11 116:18
activating 78:19	agree 39:3 84:22 104:13 111:5	anticipate 31:4	assistant 2:18,22 5:4, 20 7:21 14:20 115:6
active 14:24 17:7 40:16 118:14	agreement 65:16	anticipating 125:25	assurance 116:22
activities 17:12 18:8 19:1,19 20:8,12 22:14 23:4	ahead 15:20 24:15 102:18 118:1	antiquated 116:16,17	atmosphere 36:21
activity 21:21	AIA 35:6	API 27:18 30:19 31:21 35:1 38:7 46:20	
actual 70:17 100:10 102:3 106:22	air 93:3	APM 27:19 29:21	
	alarm 56:24 57:23 58:25 60:21 61:5,17,19, 21 62:1,4,7 63:18,25 64:1,3,8,17,23 66:12,13	apologize 12:24 59:21 99:4 105:7	

attached 71:1	65:10 66:14,19 70:14, 22 73:2,17 74:3,17 82:17 85:13,19 90:6 102:16 103:25 105:3 106:5 107:3,4 117:24	90:3,18,25 91:16,21 92:2,10,19 93:9,12 100:17,20 101:3,6,9,16, 19,22 102:7,11,18,20 103:5,11,22 104:5,9,17 105:2,16,19 106:9,13, 15,24 107:9,16,21 108:2,6,10,13,17,21,25 109:8,12,19,21,25 110:4,12,16 111:1,14, 17,21 112:5	104:21 111:16 113:11 114:12,17 115:3,5 116:8 117:11,13,14 123:13 126:16 127:8
attachment 28:8			boiler 2:5,15,16 3:14 4:6 5:7,11 6:14,16,19, 23 7:4,23 16:2 25:7 32:10 39:15 52:10,13, 16,20,22,25 53:1,5,6 55:10,11,25 56:1,2,22, 24 57:2,5 59:23 60:13, 19,22 61:4,6,8,16,23,25 62:4,12,13,21 63:17,21 64:2,8,9,11,12,13,22,23 65:4,6,13,19,24 66:12, 18,21,24 67:5,6 71:6,11 72:7,8,13 81:15,19,21 82:2,6,7,10,20 83:1,10, 15,16,23,25 84:3,4,10, 13,14 85:10,15,21,25 86:3,5,24 87:4,15,16 88:5,7,8,13,17,24 89:7 91:6,14 92:8 93:20 94:12,17 96:25 97:13, 24 98:4,5,9,11,12 99:16,25 100:2,6,9 101:3,6,14,15 102:3,21 104:22 105:23 106:4 107:4,5,7,15,17,18,20, 22,23,24 108:3 109:1, 13,22 110:2,3,8,19,22 111:16 113:10 114:12, 18 123:8 125:11 127:2, 8
attachments 28:6			Boilermaker 2:10
attendance 7:17 60:14 97:19 115:12	back-up 87:18	Baughman's 68:11 76:17	boilers 51:13,24,25 54:18,21,23 55:9 58:24 60:12,24 69:20 70:23, 24 71:4 76:3 79:7 85:11 89:19 96:6 97:3 100:18 107:11,12,13 116:11 117:19 119:6 120:10 123:5,12
attendant 62:12,13,21 64:6,19 71:11,12 78:25 82:18 84:3 85:25 86:5 87:4 88:5,7,8,24 91:13, 14 93:20 98:5,12 99:3 100:1 105:24 106:3,5 107:1,3,7	background 45:10 60:7	Baum 6:18 123:2,4	Boisco 6:1 91:5
attendants 52:13 71:6 91:6,7 92:1 97:24 98:13	backing 61:12	beeper 57:17	bottle 112:13
attended 7:23	backwards 101:17	beg 109:24	bottom 83:23
attention 51:21 72:21 77:7 105:18,20	Bailey 2:20 5:21 50:14 53:14 54:4,6,9 68:16,21 102:12,15	begin 4:13,25	bouncing 70:15
audible 102:2	bank 124:14,23	beginning 62:3 63:20 64:4	bound 32:4
audience 4:21	Barnett 6:25 9:15,17 116:4 117:4,6 118:18, 22,25 119:12 120:3 122:11,24 123:11 124:5,12,16,20 125:2, 14,20 126:6	behalf 27:11	Bowers 2:7 5:14 11:15 36:9,16,19 37:18,24 42:7,9 49:5,13 50:20
audited 25:17	based 21:16 28:1 32:1, 13 38:6,7 46:7,9 70:10 72:7 75:18 76:16 110:2 114:21	behoove 102:22	
audits 15:2	baseline 27:22	Beiling 5:2	
August 12:4,5,7 13:2, 12,22	basically 89:13 99:1 117:20 124:8	beings 111:3	
auspices 87:4	basis 73:20 74:17	Bennett 97:7	
authorization 25:15	Baughman 2:4 5:10 13:4 15:24 16:4,8 23:12,25 24:22 25:24 26:12 34:21 35:12,16 36:4,8 39:9 40:22 42:14 43:1,5 47:12,21,25 48:5 53:21 55:19,21 56:6,14, 17 57:7,12,21,25 58:9, 17,21 59:3,8,12 61:15, 24 62:6 63:16,22,24 64:14 65:3 66:7,17 67:13,16,23 68:1,4 71:23 72:1 73:2,8,12 74:4,8,20 75:3,6,12,24 77:14,19 78:1,4,7,9,13, 17 79:2,6,9,16,22 80:2, 17,19,24 81:7,12,15,18, 23 82:1,5,8,21,23 83:2, 9,14,18 84:5,22 85:2,6, 24 86:2,8,13,22 87:2,10 88:3,11,20,25 89:12,18	bet 81:12	
authorized 98:15		big 20:24 21:2 70:15 127:11	
automatic 124:11,12		bigger 48:25	
automation 92:13		bit 8:25 18:18 20:15 39:8 55:14 74:10,22 110:24 121:16	
auxiliary 100:23,24 101:14 102:6		biweekly 42:1 47:16	
aware 119:15		black 60:7	
axillary 100:25		blanche 43:3	
aye 11:19 13:13 26:17 50:25 69:2 95:16 113:23		blow 61:21 65:9,12	
		blows 65:12	
B		board 2:22 4:6 5:5,11, 13,14,17,18 8:6 9:1 10:21 15:18 17:2 20:20 23:11,22 25:4,11,13 27:6,13 28:9 29:2 30:5, 9 34:12 36:25 38:13,23 39:2 47:4 48:18 52:23 68:8 69:24 72:23	
B-4 56:18			
back 4:10 7:23 38:18 39:13 40:20 47:4 48:12, 19 56:23 59:4 60:20 63:18 64:10,11,13			

53:23 54:1,7 71:22 112:1 113:17 119:21	capabilities 92:3	CFNS 121:12	Charleston 7:9 27:16
box 122:1	capability 58:5,15	Chairman 2:2 4:2 5:12 7:16 8:3,22 9:10,16,18, 19,21,25 10:20,24 11:3, 8,13,16,18,21,24 12:12 13:5,8,11,15,18,21 14:14,16,19 15:7,10 16:1,6,9,12 20:19,23 21:24 23:10 24:23 25:1, 21 26:1,6,10,13,16,19, 21,24 27:2 30:8 31:6,24 33:2,5,10,15,21,25 34:3,5,8,13,18 35:4 38:9,21 40:11,14 41:19 42:7 43:14,19 44:15,20, 24 45:2 46:19,22 47:7,9 48:11,17,23 49:3,11,17, 19 50:8,11,15,18,21,24 51:2,4,7,10 53:9,17,22, 24 54:3,15 56:13 59:20 60:2,11,17 61:2 62:9, 20,24 63:2,8,13 67:17, 20,24 68:2,7,18,25 69:4,6,12,16,24 71:16, 19,24 74:15 76:16 77:1, 12 83:21 88:4 89:5,9 90:12,15 92:22 94:6,9, 15,20,25 95:3,7,12,15, 18,21,24 96:2,11,13 98:19 99:7,11,14 104:14,19 110:9,14 111:13,19,23 112:4,10, 12,15 113:4,7,15,18,21, 25 114:2,5,8,23,24,25 115:11,14,18,25 117:3 118:16,19,24 119:4,19 120:15,17,18 121:6,10, 15,20,24 122:10,17,25 123:3,24 124:1 125:9, 18 126:1,7,10 127:6	chart 60:5 98:25
brand-new 30:17 32:3 76:13	capacity 37:7	change 68:22 81:19	Chattanooga 2:11
break 60:20 69:14	capitalized 12:18	change-outs 18:14	check 60:21 63:25 64:24 80:1,23 86:10,11, 18 88:12,16 115:19 120:12 124:6,7,9,24 125:3
Brian 2:2 5:12	capture 16:23	changed 20:8 110:21	checked 86:5
briefly 75:10	card 124:24	Chapman 2:15 5:8 7:21 14:1,2,15 16:3 32:11 35:10 74:13	checking 60:18 64:16 65:4,13
bring 65:8 117:24 118:13 121:4 122:5	cards 125:4,5	Chapman's 14:17	checklist 73:3 90:19 94:22 111:24
bringing 105:18	care 15:12 35:24 39:18 107:8	charge 124:3,19,23 125:3 126:18	checks 64:25 72:13
brings 65:17 116:9	Carolina 119:25		chemical 7:15 27:7,10 28:2
Brooks 76:14	carte 43:2		chief 2:15 3:14 5:8 7:6 10:12 13:25 14:1,17,20 16:2 25:8 32:11 68:9 73:17 74:1,12 113:10 120:4
brought 23:19 39:25 72:20 77:6 79:12,14 105:12 117:11 118:10	case 75:19 76:3 87:18 99:20,22 102:4		chief's 72:15,25
BTUS 121:12	Cassandra 5:1,2 49:23		chiller 66:1
budgets 21:21	catalyst 18:13		chillers 93:4
bugs 66:20	catch 99:5		choices 119:10
build 46:25	categories 46:9		chosen 28:1
building 4:18,19 77:21 92:12,17 105:6 127:17	category 29:19		Chris 2:16 5:6 14:12,20
built 79:10 91:11	caveat 122:2		Christmas 127:19
burden 40:9	cell 4:23		Cincinnati 5:24
burner 76:5	Center 3:4,7,19,20,21 6:3,5,7,9,11 7:3 51:11, 20 67:22 69:21 70:3 88:17 91:12 96:5,16 97:10 98:8		circuit 52:11 64:1,17
business 3:16,18 10:8 15:14 16:15,16 69:13 114:10	Centerville 2:8		circuitized 19:23
button 84:2 105:25 106:1,2,4,10	central 92:12,14,18 97:11,16 105:15		circuits 20:7,13 29:12
<hr/> C <hr/>	certificate 35:8 49:24 50:1		Claiborne 3:7,21 6:7,8 91:12 96:4,16,21,22 97:10 98:7
calculating 46:6	certificates 50:4		clarification 73:9
calendar 18:25 20:13	certification 25:14 35:1 90:13		clarifies 41:9
call 3:10 4:8 61:11 64:10 69:1 76:19 78:3,5 95:15 113:19,22 122:19	certifications 44:18 89:22,23,24 90:4		clarify 39:7 41:1 88:9
called 12:23 24:5 37:4 59:10 124:15	certified 44:2,13 71:11 88:7,24 97:18 110:21		Clarksville 15:3
Campbell 6:6 96:15	certifies 90:10		class 37:25 38:2,3 87:24
	certify 90:7		
	cetera 93:4		

classify 45:22	communication 79:1 82:17	conflict 9:2,6 54:5,10	controller 55:4 57:6
clean 102:17	communications 56:19 57:8,13,18 58:3 59:5 78:24 85:22 92:3,5	conflicts 25:25 26:3 50:14,16 53:16,25 71:17 96:8 98:20 114:18 115:2	controls 53:2,5 54:18 66:25 67:6 76:2,4 99:15 103:12,21
clear 79:1 80:10 86:16 120:13	community 120:10	conformance 27:18	convenient 115:10
cleared 82:17 83:17 105:23	companies 74:25 123:5	confusing 88:22	conversation 104:25
cleaver 65:10 76:13	company 7:5 23:19 24:13 44:10	consequence 46:3,8	Conversion 69:18 96:4
Cleaver-brooks 70:23	compare 62:11	considered 53:4 72:4, 6 75:4 93:21	Cookeville 15:5
clients 91:25 103:17	compared 36:21 126:22	consistency 62:25	cooking 52:3
clock 40:16	complacent 85:9	constantly 61:4	coordinate 115:9
close 97:16	complete 8:17 18:10 22:18 75:21 116:21	construction 28:2	copies 44:21
closer 110:7	completed 15:1 17:24 18:8,20,22,24 19:18 20:9 27:21 80:12 122:16	constructive 127:16	copy 16:6 56:11
closing 127:13	completely 18:1	Consulting 6:1 69:25	Corp 7:15 27:7,10
cloud-based 91:10	component 30:2	contact 62:14 72:15 77:11	corporate 17:14
CMC 97:2 103:16	components 29:21,22 30:1 80:5,8,12,14,20 81:5	contacted 10:11	corporation 21:14
CML 22:18	composition 28:2	contacts 104:1	correct 33:8,9 36:11,16 37:23 38:19 54:19,20 55:18,22,23 56:3 60:1,6 62:21 63:6,7,11 64:20 78:21 100:8,18 112:3,4
Coast 21:6	computer 57:14,23 58:25 110:6 116:3,13, 15,18,21 117:1,10 118:20 119:9	contend 58:1	correctly 64:6,7
cock 109:3,4	concern 58:6 68:11 84:9,12	content 12:18	corrosion 19:13,14 22:22 28:14,22,24
cocks 108:23	concerned 86:19	contingency 68:12 76:18 81:13 95:10 111:10	corrosions 24:9
code 14:9,10 23:23 25:2 32:14 109:22 111:4 118:4	concerns 72:21 73:21	contingent 68:1,9,15 94:11,15 110:5 111:7 113:9 114:6 125:23	corrosive 36:20 45:23
codes 59:16 81:5 97:21	concludes 114:9	contingently 69:9	Corvin 6:10 51:19 54:23 55:8,17 56:2,9, 16,20 57:9,16,22 58:8, 11,14,24 59:6,9,13 60:1,16,18 61:3,18 62:2,8,16,23 63:1,7,12, 19,23 64:4,20 65:18 66:8,19 67:15
collaboration 126:25	conclusive 34:17	continual 85:20	correctly 64:6,7
colors 60:10	condition 36:24 100:9 102:21 105:22	continue 8:9 28:18 29:1 50:12 77:14	corrosion 19:13,14 22:22 28:14,22,24
comment 15:17 31:25 76:17 80:20	conditions 10:11 19:17 28:3 38:15	continues 17:6,8 29:16	corrosions 24:9
comments 10:16 12:10 13:9 15:19,21,25 16:5 23:11 25:19 26:14 50:9,22 59:21 63:14,15 67:18 68:19,23 77:13 94:7,16 95:13 98:22 99:12 104:20 113:5,11, 19 115:2,7,22 125:10	conduct 41:15	continuing 7:20 19:1 72:10	corrosive 36:20 45:23
Commissioner 2:18 5:20 7:21	conducted 28:4 29:8	continuous 19:3 40:21	Corvin 6:10 51:19 54:23 55:8,17 56:2,9, 16,20 57:9,16,22 58:8, 11,14,24 59:6,9,13 60:1,16,18 61:3,18 62:2,8,16,23 63:1,7,12, 19,23 64:4,20 65:18 66:8,19 67:15
common 43:12		contract 91:4	counsel 2:20 5:22
communicate 107:8		contracted 72:18 90:21	couple 118:17
communicated 39:13, 22		control 53:3 56:22 57:1 59:1 72:8 80:3 92:13 97:5 104:2 112:22	court 5:3 12:13 16:22
			Covenant 76:24
			cover 43:6 122:13
			covered 42:10 109:18 119:17
			covers 108:17

cracking 19:13	dates 3:22 114:11 115:3,23	demands 121:25	disagree 102:7
create 60:21 61:17,19, 21,22 62:4,6 66:1,12,13	Dave 5:10	demonstrates 28:15	disaster 4:16
created 117:23	David 2:4 24:17	department 6:20 7:1 73:24 126:13 127:1	discovery 22:17,20
creates 64:8	day 47:24 51:25 58:3 62:13,17 74:3 88:19 97:8 98:10 109:23 111:4 127:15	depending 23:6	discuss 38:13 53:15,19 71:20,22 98:20 119:1 122:13
credentials 44:4	day-to-day 23:3	Depends 43:24	discussed 12:5 39:25
credit 124:24 125:4,5	days 52:1 61:1 88:19 97:8 120:25 121:2 125:16	deputy 2:16 5:6 6:14 68:10	discussing 123:15
criteria 43:8 121:14	daytime 98:6	describe 22:4 45:5	discussion 3:22 8:21, 24 9:15,17 11:16 13:9 53:10,16 54:12,16 68:20 114:10 125:14 126:3
critical 45:22,25	deaerator 76:14	design 19:25 41:14 46:7 110:2	discussions 4:22 117:20 125:12,13
crossing 78:10	dealing 73:22	designed 37:14 118:22	disk 122:7,8
CSD-1 108:4,17,19	Deaton 6:2 70:1 77:6 84:25 85:4,13,17 87:8, 17 92:4,9,11,21 93:1 94:3 104:18	designs 104:22	display 100:10
CUI 18:22 20:10	debit 125:4	detail 40:25	distributed 10:18
curiosity 43:9	Deborah 6:16 41:20 47:12 49:12,13	details 105:20 106:18	Distribution 20:6
curiosity's 124:2	December 4:6 9:3 10:5,10 29:2,7 65:19 114:15	determine 32:22 41:18	division 116:7,9,23 117:7 127:1
curious 124:25	decide 102:24	developed 90:22 91:9	document 27:19
current 9:4 20:14 23:2 29:17 30:7 47:13 50:4 72:21 96:7	decided 9:22 18:3	development 50:13 91:2	documentation 45:12, 15 63:5
custom 91:10	decoke 23:19	deviation 85:23	door 65:9
customers 123:6	decoking 23:17	device 16:23 121:22 122:1,3	Doris 6:25 8:18 9:15,17 116:1,2,6,9 117:6
cut 24:16	decreased 20:12	devices 103:21 116:11 117:12,14 119:8,11	dormant 14:25
cutoff 100:25 101:13 102:6	deem 32:8	diagram 105:9	dotting 78:10
<hr/> D <hr/>	define 92:4	dictate 104:21 108:8,21	downsizing 66:21
D-TYPE 70:23	defined 36:10,20	dictates 25:2	drive 24:9
DA 97:6	delayed 67:11	dictum 118:1	due 10:10 12:4 15:5 21:17 23:7 24:12 30:24, 25 39:23 53:4 111:14
damage 17:8 20:2,11 21:16 28:24	deletions 9:12	differ 109:24	duly 111:19 112:8
damaged 19:3	delinquencies 19:21 116:24	difference 59:22	duties 39:19 62:12 89:1 93:22 98:4
damages 28:25	delinquency 120:24	difficult 74:14	dynamic 99:22
Dan 5:21	delinquent 14:5,7	difficulty 122:7	<hr/> E <hr/>
dangerous 93:14	demand 51:25	digging 117:21	e-stop 64:19 78:20
Daniel 2:20	demand 51:25	direct 4:18	
data 19:24,25 20:1,5 24:8,17 28:15 32:12 47:3 74:19 123:17	demand 51:25	direction 59:2	
date 29:5 44:19 47:8 115:9 120:21,22	demand 122:21	director 51:20 52:15	

81:19,23 82:1,2,9,15, 19,25 84:1 106:11,12	ends 47:8	ETSU 10:11	116:10
e-stops 82:25	energy 69:18 93:21 96:3	Eugene 5:23 119:23	experienced 74:24
earlier 27:21 28:9 31:21 89:16 125:20	enforced 72:17	evaluate 55:23	expertise 126:19
early 47:6 98:10	enforcing 73:14,15	evaluating 28:23	expiration 120:21,22
earthquake 4:4	Eng 7:14 27:6,7,11 30:15 31:17 33:9,19,23 34:2,6,9,24 35:9,15 36:2,6,13,17,22 37:23 38:4,19 40:13 41:1 42:4,12,21 43:4,7,12, 17,23 44:3,6,9,12,18,22 48:15,22 49:1 50:6 51:9	evening 98:10	explain 70:6 83:7
easier 74:18	engineer 2:13 45:8	event 4:15 45:23,25 121:1	extend 21:1,10 32:20 38:24
east 3:1,17 10:11 12:19,24 15:14,21 77:20 78:3,6	Engineering 6:13 7:11 51:18 67:3	eventually 33:25 38:6	extended 25:5 39:3
Eastwing 105:6	enjoy 117:8	Evergreen 19:1	extending 65:7
Ebony 2:22 5:4 115:6	ensure 81:4,11 84:19 98:17 103:17	evergreening 45:16	extension 25:6 39:5 47:2
ECS 6:1 69:25	entered 123:18	every-two-hour 72:13	Extensive 18:4
editorial 105:14	enters 109:5	evidence-based 74:25	extent 36:1
effect 67:14	entire 28:3 37:14 55:11 56:10 67:4 93:3 121:4	exact 98:13	external 18:19 19:10 29:9 32:16 38:1 44:10, 13 59:7
effected 105:22	entity 126:21	exam 87:24 98:14	externals 20:10
effectiveness 19:7 24:19	enunciate 12:25 57:13 59:4	examination 28:22	extrapolating 48:6
efficiencies 66:24	enunciates 103:24 104:6	exams 89:22 91:17	
efficient 15:20 21:22	enunciation 99:17,19, 24 105:4	exceed 31:17,23	<hr/> F <hr/>
effort 8:16	environment 28:17 42:25	excellent 123:11	facilities 81:24 87:11, 13,15
efforts 18:5 22:16	equation 65:9,17	exception 111:11	facility 17:18 20:17 21:3,8 27:16 28:3 30:7, 17 32:2 37:15 39:18 44:6 47:6,15 52:14 70:2,5 88:18 92:16 93:3 96:15,23 98:1,2,3
eight-hour 60:14	equipment 19:20,23 28:1,16 29:9,15,18,21, 23,25 30:3 31:19 32:3, 8,12 33:3,17 45:24 46:1 72:7,8 104:22 111:6	exchanger 29:24	facility's 87:8
elaborate 85:13	erosion 28:24	excited 117:16 120:8	fact 70:17 72:12 121:17
electronic 109:9	Esq 2:18,20	exciting 118:6	failed 15:5
elevators 116:11 117:12,13	essence 90:9	excuse 17:20 63:19	fails 103:10
email 10:2 59:4 99:1 115:8	estimating 118:12	execute 18:14 22:14	failure 46:3,4,7,13 92:1
emails 57:19	ethernet 58:13,16	executed 17:10	failures 103:15 104:7
emergency 4:16 71:2 82:14,16 83:22 84:9 87:19 97:21 105:25		executing 19:4 20:15 22:12,24	fairly 39:22
employee 116:7		exercises 17:17	fall 23:25 24:3 37:25 38:2 55:2 76:10 86:20 88:18 108:3 111:22
employees 66:3		exhaust 93:5	falls 88:13,14
enabled 83:25		existing 52:25 69:19 72:19	false 62:7 63:25
encompass 86:18		exit 4:19	
end 65:10 111:2		expand 119:9	
		expanded 99:17,18,24	
		expanding 110:6	
		expecting 127:12	
		experience 80:11	

familiar 55:1,15	forever 35:15	gatekeeper 122:18	Greg 7:4
fans 93:5	forms 9:2,4,6	gather 24:6 47:3	Gross 7:6 17:1,3 20:22 21:2 22:1,8 23:9,16 24:4 27:1
favor 11:19 13:12 26:16 50:24 69:1 95:16 113:23	Fort 3:5,20 6:2 69:20 70:2,8,13,21 71:5 72:9, 16 76:24 88:17 89:14, 24 90:9,10 91:4,11	Gene 112:13	ground 97:14
feed 97:6,7	forward 16:5 39:21 75:17 81:3 116:15,18 117:2 118:7	general 120:9	Group 6:1 91:5
feedback 120:6	fouling 24:13	generalized 28:22	growing 34:19
feel 36:24 79:19 115:7	found 14:9 75:1	genie 112:13	guard 88:13,16 89:2,7 98:9 112:17
feet 59:24,25 60:1 92:18	four-hour 65:7	gentleman 45:5	guards 98:11
felt 77:9	fourth 37:7 86:2	gentlemen 15:11 51:8, 15 69:9 95:25 104:25 114:5,7	guess 8:7 30:11 33:5, 12 36:6 43:1 48:18 82:23 83:2 84:5 88:11 101:24 102:23 104:19
FEMA 45:21	Fox 2:10 5:18 11:11 26:8 53:12 54:17,21,25 55:5,12 59:14 76:7,8 95:11 99:13,15,23 100:4	George 5:3	guest 93:17
Figure 59:24	Fracad 7:8	Georgia 119:24	guests 17:2
filter 41:11 42:19	frame 48:3 126:2	Germany 35:3	Gulf 21:6
filters 41:12,13 42:15	free 115:8 126:18	get all 118:9	guys 45:14 125:1
final 54:11	frees 61:3	give 20:24 25:8 27:4 37:3 45:13 52:23 68:13 85:11 116:2 120:20 122:22 126:20	
find 76:11 80:12,13 97:9	frequencies 21:1,7 25:3,5,7 39:3,6 41:18 47:3	giving 14:4,7 47:5	<hr/> H <hr/>
finding 8:5,6,7 22:20	frequency 21:11,13 22:7 24:21 30:21 38:25	glad 105:11	hack 93:9
findings 29:3	fresh 74:18	glass 65:12	hacked 58:4
fine 102:9,10 126:6	Friday 71:7	Glossary 71:8	halfway 56:18
fire 66:13 82:2 83:15,16	fruit 73:23	God 61:9	hand 65:11 77:5
fired 82:6	Ft 6:5	Golden 7:2	handle 74:12 118:20
fireproofing 20:16	full-day 87:24	good 4:2 17:1 27:6 36:1 42:21 51:17 77:13 79:9 88:3 89:12 91:3 92:2,19 104:25 106:24,25 117:3 119:20,24 122:4,5,12 126:8 127:17	handled 60:13 89:21
firetube 97:3	fully 33:11 93:6	Goodlettsville 2:13	handling 93:4
five-year 19:18	funny 127:9	grace 118:21	happen 8:14 45:24 61:9
flame 61:20 76:4 99:20 104:6	future 27:20 28:19	gracious 10:1	happy 90:1 115:8 126:24 127:19
flip 103:8		grade 24:18 91:19	hard 8:16 12:20 60:6
floor 51:16 53:10 54:16 69:22 97:12 98:21 116:3	<hr/> G <hr/>	grading 19:6	hardware 55:22 58:4
fluid 19:16 46:9	gap 17:16,22	graph 20:6	Hardwired 57:9
focus 28:21 117:18	gas 65:10 108:14,22 109:1,5	gray 70:16	Hargrove 2:12 5:16 13:7 21:25 22:2 23:8 30:10 31:6 32:24 33:4, 14 34:15,16 45:1,3,4,7, 19 47:7 50:19 68:5 93:16 94:1,13 95:2,9 113:13 115:11,16
folks 7:22 127:10	gasket 65:9	great 8:4 61:13 64:14 89:14 107:9 117:5 122:22	
follow 30:20 124:11			
follow-up 14:23 103:22			
forbid 61:9			
forecast 22:24 24:20			

Hargrove's 31:25	Hipp 7:12 27:9 45:7 46:2,6,14,21	identify 100:16	initial 27:21 117:19 125:13
Harold 2:7 5:14	history 117:7	idle 41:3	input 108:7
Hartford 6:18 123:4,8, 12,15	hit 64:1	II 3:11	inserting 106:1
Hawk 53:13 54:18 55:1, 15 57:16 59:16 76:6	hitting 85:10	III 3:12	inside 4:18 71:12
Hawk1000 53:2 54:19 55:2,4,25 56:15 58:20	Hold 41:19	immediately 120:14	inspect 37:20 41:24 48:9
Hawk4000 55:2,9,11, 25 56:5,8,10 68:12,14	hole 65:11	implementation 125:19	inspected 22:21 40:5, 20 42:2,3
HCI 37:4	holiday 126:24	implemented 27:17 33:11	inspecting 39:11,14 40:23 47:18
head 30:2 108:1	holidays 127:19	impression 72:10	inspection 14:24 16:18 17:5,6,14 18:8 19:4,5,9,19 20:2,3,8,12 21:1,7,11,12,20 22:10, 13 23:3 24:3,10,18,20, 21 25:3,4,7,14 27:14,19 30:20 31:12,15 32:4,16, 17 35:5,8 37:9,11,16 38:1,3,5,25 39:3,6 41:15,16,18,25 43:6 45:11,15 46:13 47:2 48:8,9 49:24 81:9 95:2, 3,5 109:18 110:5,15 111:8,11 112:7
header 109:14	Honeywell 76:3 97:5	in-house 34:25	inspections 14:3 17:9 18:14,17,19,22,24 19:8, 11 20:1,14 21:16 22:3, 18,25 23:7 27:20 29:5, 6,8,9,10,18 30:6,11,13, 23,24 31:2,4,8,14,18 34:23,25 35:2,14,19 39:22 40:10 41:8,23 45:18 48:4,12 111:2 118:3
heads 28:12	hooked 58:13,23	in-particular 23:24	inspector 2:15,16 5:7, 9 6:15 7:7 10:12 14:1,7, 20 16:2 25:8 32:11 35:23 37:19,25 39:18 41:23 42:11,12 47:14 68:10 73:17 74:1 81:9 104:15 110:22 113:10
Health 10:17,19 76:24	hope 12:8 126:23 127:15,16	inactive 40:19	inspector's 3:14 13:25
Healthcare 15:3	horse 66:22	inbred 66:2,6	inspectors 14:3,4,6 44:1 47:16
hear 85:21	hospital 59:7,11 65:21, 23 77:20 93:24,25 97:13 105:6	include 12:3 68:19	installation 78:22 102:5 103:2,3 110:10, 15,19
heard 20:21 118:9	hot 65:10	included 28:6	
hearing 7:24 11:9,18 25:21 67:20 68:22,25 71:20 94:9 113:7,21	hours 51:25 60:19,22 61:16 64:24 65:4,14 72:14 86:12,19 88:10, 19 97:8	includes 28:12	
heart 89:16	house 52:5	incorporate 35:21 59:16 99:16	
heartbeat 65:23	Huber 15:3	incorporating 113:11	
heat 29:24	huge 12:13	increase 17:17 22:2,6, 25 31:8	
heater 23:16,19,24 24:5,7,11	human 111:3	increased 22:22 65:8	
heaters 23:23	humidification 52:3	increasing 46:13	
heating 52:2	hundred 24:19 42:23	independent 80:14	
helpful 127:16	hundreds 33:19 36:7	indicating 45:1 112:9 120:16,23 123:2,25	
helps 21:14 24:20	HVAC 52:15	indication 64:9	
Henry 115:19	hydro-treater 18:12	individual 8:15 75:21 80:8,14	
HF 17:15,25		individually 41:7 80:21	
high 70:22	<hr/> I <hr/>	individuals 52:8 71:4 84:19 85:20 87:22 88:18,21 90:7,10	
high-pressure 51:12 52:1 69:20 96:6 97:2	I's 78:10	infinitely 121:4	
high-water 85:4,7,14	i.e. 65:9	information 8:25 46:8 48:4,19 49:16 55:7 56:4,7 114:17 120:20 121:5 122:8 123:20,23	
higher 29:22 65:17	ICS 76:6		
highest 42:24	identical 37:5 38:12 41:14 42:15		
highly 115:17	identified 109:2,12		

installed 76:13 99:21	invert 60:9	Joshi 7:8	law 32:5,14 104:24
instance 41:3	investigate 81:10	Julius 6:2 70:1	laws 90:5
insulation 20:16 28:25	invoices 120:11 123:18	July 14:12	lead 52:16 57:2
insurance 2:8 5:24 14:4,6 35:22,23 42:11	involved 48:7 52:8,11	June 114:14 115:12 125:25 126:4	leader 87:9,17
insured 54:2,7	issuance 96:20	June-july 126:2	leadership 126:17
insuring 54:13	issues 58:1 67:9 117:1, 15	Jurisdiction 117:9 118:14 119:14,22 122:14 123:13,14,17,19 125:15	leaks 65:12
intangibile 127:3	item 4:15 9:11,14,20 10:4,7,8,13,20 11:4 12:1 13:24 15:13,17 16:15,16,20,22 26:4 27:3 51:11 53:20,25 68:20 69:18 71:17,21 83:23 91:12 96:3,9 105:21 114:10 126:3, 11,14	jurisdictional 18:23 19:19 20:14 36:10,14 37:20 39:12 47:14	leave 64:22 65:1 110:4 126:3 127:11
integral 80:3	itemized 75:15	<hr/> K <hr/>	leaves 58:5
integrated 20:3	itemizing 108:14	Keith 2:12 5:16	Lee 104:16
integrates 19:25	items 3:22 8:24 9:17 12:17 15:12 18:9 22:20 23:22 69:13 100:14 111:8,9 112:8 114:11	Kelley 7:4	left 70:4
integrity 17:16,23 27:8, 10	IV 3:13	key 17:12 18:1 21:3 40:11 100:10 106:1,10, 11,18,19,23 112:22,23 113:3 115:13	leg 32:17,18
intent 32:7 38:20	IX 3:22	kick 30:17	legal 2:20 5:21
interest 9:2,6 26:3 50:16 96:8	<hr/> J <hr/>	Kim 2:18 5:19 117:4	letter 72:3
interested 86:23 89:21,24	J's 78:11	kind 39:20 43:10 46:23 48:6 60:6 64:15 78:10 84:6 106:17	level 65:8,17 79:3,4,8 97:14
interesting 8:12 76:11	J.M. 15:3	Kirby 6:20	licensed 97:17 110:22
internal 18:17 21:1,6, 11,20 22:3 25:7 28:14, 22 29:8 30:11,13 31:2, 14 32:6,16,21 33:7 34:24 38:3,5,24 39:5 41:15 47:2 48:12 59:6	James 6:4,12 7:2 51:17 70:4	knowledge 116:12	lightly 127:5,9
internal/external 21:15	January 91:9 125:16	<hr/> L <hr/>	likelihood 115:12
internally 34:11 35:1	Jefferson 2:18 5:19 7:21 8:2,20 9:14 40:3 114:23,25 116:5 125:11 126:15	Labor 6:21 7:1 126:13	limit 22:20
internals 20:9 33:18 46:24 47:10 49:7,9	Jeremy 7:6,12 16:19, 25 17:3 20:19 23:13 27:9	lack 15:5	limitations 119:16
international 3:6,20 115:17	John 15:4	Lane 2:5	limited 21:6 119:7
internet 59:10	JOL 120:19	lapse 75:18	list 31:9 52:14 117:22 126:3
interval 19:18		larger 109:1,13	listed 18:10 75:8,13 76:14 80:13,16,21 81:11 114:13
intervals 40:5,6 41:25		Larry 6:8 96:17 98:2	listing 80:6
intranet 59:10		latitude 25:9	lists 55:7
introduce 51:15 69:21 70:1 96:14		launched 91:9	literature 68:12,14
introduction 117:5		laundry 66:23	load 42:19
introductions 3:11 4:13 5:1		Laurel 92:17	located 69:20 70:25 77:25 82:25 97:11,13, 24 105:13,14

lockouts 84:24	maintenance 17:10,11 18:4,6,11 21:22 22:9 52:16 92:16 93:24,25	114:13 126:4,12 127:20	meetings 9:3 114:12
log 63:5	major 17:11 18:4,5,11 21:22 22:9,19 23:4 45:22 117:15	Marty 5:25 69:24	Member 5:11,13,15,17, 18
logging 61:4	majority 18:9 76:9	marvelous 61:14	members 9:1 10:21 15:18 20:20 27:7 29:2 34:12 39:2 69:24 114:17
Loggins 6:22	make 4:10 7:18 8:19 9:8 10:13 11:11 15:17 22:6 26:8 32:23 44:16 50:3 57:1,2 60:3 64:2, 17,22,25 80:10 84:18 85:8 94:24 99:8 105:14 106:20,21,22,25 111:7, 18 112:7 114:19 117:24 118:1,8 119:15 122:12, 14 123:17,22	Mary 122:17	Memphis 3:2,18 7:7 16:17 17:4,7
logic 30:12	making 64:16 65:22 94:16	master 79:3,5,8	mentioned 47:13 58:22 70:8 72:2,4 123:6
logistics 39:11	man 97:22 98:15	match 121:14	Meridium 27:18 29:21 30:15,21 31:20 45:16
long 20:24 47:10,11 83:17 89:20 115:20 117:7 123:20 125:8	manage 23:3	materials 17:14 28:1	Merry 127:18
longer 86:4	managed 19:21	math 39:17	metallurgy 38:14 41:15
looked 112:8	management 19:25 24:8 38:16 76:5	matter 70:17 72:12	methodology 19:8 29:23 37:1 39:4 41:16 46:20
lot 33:17 39:17 45:10 65:24 77:7 98:3 124:22	manager 61:10 70:2 87:17 96:16 117:9	Maury 3:4,19 6:10 51:11,19 67:21 89:15	metrics 45:21
low 29:19 46:15,16 100:17 101:7	manned 71:3 97:17,20	maximize 21:20 22:16	Mike 6:6,14 96:15,24 98:16
low-hanging 73:23	manner 89:21	maximum 21:13	Milton 2:6
low-water 61:22 85:5 99:25 100:9,25 101:13 102:6,21	mannin 98:4	maximums 21:11	mind 39:10
low-waters 104:9	manpower 22:5 23:1 39:19 73:22	meaning 92:5	minimize 30:11
lower 24:14	manpower-wise 35:21,24 39:16	measure 119:7,10 121:11	minimum- requirements 117:22
lower-case 78:10	manual 15:18,22 55:10,22 56:10 59:15, 17 60:3 61:7 62:25 72:20,22 75:19 92:23 94:16 99:8 101:15 102:4 109:4,6,8 113:12	measurement 27:24 28:10	minor 45:22 93:24
LPN 99:3 107:2	manuals 10:22,25	measurements 24:7 27:22 28:5,6,13,21 29:10,11 36:23 45:15	minute 49:22
LPNS 97:18	manufacturer 103:4 104:21	mechanic 52:17	minutes 3:13 12:2,4,5, 7,9,10,21,22 13:3,13,22 86:4,12,13,14,20 88:1
Lucite 3:6,20 9:20	Manville 15:4	mechanical 2:13 17:16,22 27:8,10 45:8	misspoke 49:22
luxury 37:15	March 3:24 9:5,23 10:3, 6,14 11:1 15:16,23	mechanism 20:2,12 59:5	mistake 89:4
Lynn 6:20 115:4		mechanism-specific 17:9	Modbus 57:13
		mechanisms 19:4,13 21:16 28:24	modifications 37:10 41:8
M		Medical 3:4,5,7,19,20, 21 6:3,5,7,9,11 7:3 15:5 51:11,20 67:22 69:21 70:3,9,14 88:17 91:12 96:5,16,21 97:10 98:7	modified 11:10 73:5, 11,12 75:4,14 76:18
made 8:14 39:5 68:19 70:11 72:15 76:1 77:11 80:19 82:2,3 93:7 94:17 110:8,10		meet 37:11 81:5 104:23 109:22 111:4	module 20:4
mailed 124:9		meeting 3:10,13,22,23 4:7,8 9:5,24 10:9,10,15 12:2,4 13:3 94:17 126:12	moment 34:25
mailing 120:12			Monday 71:7
main 59:16			
maintain 17:8 37:6 70:24 114:20 115:20			
maintained 19:20			

<p>monitor 28:18</p> <p>monitoring 19:13,14 20:1 32:2 45:14 62:11</p> <p>months 22:19 117:13 118:13 125:21</p> <p>Morelock 2:2 4:2 5:12 7:16 8:3,22 9:10,16,19, 21,25 10:20,24 11:3,8, 13,16,18,21,24 12:12 13:5,8,11,15,18,21 14:14,16,19 15:7,10 16:1,6,9,12 20:19,23 21:24 23:10 24:23 25:1, 21 26:1,6,10,13,16,19, 21,24 27:2 30:8 31:24 33:2,5,10,15,21,25 34:5,8,13,18 35:4 38:9, 21 40:11,14 41:19 42:7 43:14,19 44:15,20,24 45:2 46:19,22 47:9 48:11,17,23 49:3,11,17, 19 50:8,11,15,18,21,24 51:2,4,7,10 53:9,17,22, 24 54:3,15 56:13 59:20 60:2,11,17 61:2 62:9, 20,24 63:2,8,13 67:17, 20,24 68:2,7,18,25 69:4,6,12,16 71:16,19, 24 74:15 76:16 77:1,12 83:21 88:4 89:5,9 90:12,15 92:22 94:6,9, 15,20,25 95:3,7,12,15, 18,21,24 96:2,11 98:19 99:7,11,14 104:14,19 110:9,14 111:13,19,23 112:4,10,15 113:4,7,15, 18,21,25 114:2,5,8,24 115:14,18,25 117:3 118:16,19,24 119:4,19 120:15,17 121:6,10,15, 20,24 122:10,17,25 123:3,24 124:1 125:9, 18 126:1,7,10 127:6</p> <p>morning 4:2 17:2 27:6 51:17 62:18</p> <p>mornings 98:10</p> <p>motion 11:9 13:2,4 25:22 26:7,8 50:12,19 53:15,19 54:11 67:21, 25 68:6 71:20,22 94:10, 13 95:8,9 98:20 113:8, 13</p>	<p>mounted 77:20,22 105:5</p> <p>move 8:24 9:4 10:13 15:16 69:12 76:23 115:1 116:15,18</p> <p>moved 10:3,9,14 53:21 67:23</p> <p>moving 9:10 12:1 13:24 16:14,15 39:21 75:17 81:3 114:10</p> <p>multi-site 70:2 87:17</p> <p>multiple 29:25 103:15 104:6</p> <p>mushroom 84:1 106:2</p> <hr/> <p style="text-align: center;">N</p> <hr/> <p>names 2:24</p> <p>National 25:13 44:2</p> <p>natural 4:16</p> <p>naturally 46:12</p> <p>nature 57:15 73:22 75:1</p> <p>NDE 19:12 43:10</p> <p>NDT 44:10</p> <p>necessarily 62:3 63:17 65:8 78:2 86:24 111:4</p> <p>needing 38:3 64:19</p> <p>negative 13:16</p> <p>negatives 11:21 95:18</p> <p>Network 17:15</p> <p>Neville 6:12,13 10:17, 23 11:2 51:17,18,23 54:20 55:3,6,20,24 56:4 58:12,15,19 59:18 60:9 63:11 67:2 69:11</p> <p>newer 55:8</p> <p>news 8:4</p> <p>Newson 12:23</p> <p>nice 46:11,18 96:23</p> <p>night 62:19</p> <p>Nitpicky 59:21</p>	<p>nods 108:1</p> <p>non-destructive 19:15</p> <p>noncorrosive 28:16 32:8,13,15 36:21 47:1</p> <p>nonfactor 110:23</p> <p>nonintrusive 19:9 21:15</p> <p>normal 62:12 78:22 83:20 102:4 103:2</p> <p>North 27:12 119:25</p> <p>note 2:24 31:22 77:19 105:5 111:18</p> <p>noted 10:4 96:12 111:20 112:8</p> <p>noticed 78:14</p> <p>notify 61:8</p> <p>notion 11:11</p> <p>November 10:2</p> <p>nozzle 22:21</p> <p>nozzles 28:13</p> <p>nuisance 12:24 84:23, 24 85:9,11,14</p> <p>number 11:4 14:3,5,9 29:22,23 31:7 38:25 48:7,25 52:21,23,25 66:18 67:6 107:18,25 110:3 111:5 121:3 125:5</p> <p>numbers 45:13 48:6</p> <p>nurses 97:18,23 105:15 107:2</p> <p>nursing 97:11,16,17,20 99:2</p> <hr/> <p style="text-align: center;">O</p> <hr/> <p>O'GUIN 2:16 5:6 14:12, 21,22</p> <p>O'Guin's 15:8</p> <p>O2 54:22 55:13</p> <p>oath 88:5</p>	<p>objection 126:14</p> <p>objects 37:21 38:2</p> <p>observation 8:7</p> <p>observed 28:13 69:15</p> <p>occasionally 84:25 85:1,5</p> <p>occur 22:14 103:14</p> <p>occurs 82:20</p> <p>Ocean 70:15</p> <p>October 7:23 29:5,7</p> <p>offer 126:18</p> <p>offhand 56:15</p> <p>office 6:17 52:7 72:15 73:1,25 92:16</p> <p>official 35:7</p> <p>offline 85:11</p> <p>oil 21:3</p> <p>older 29:16 57:16</p> <p>on-site 91:6</p> <p>on-stream 17:10</p> <p>ongoing 18:5 19:2</p> <p>online 40:15 42:18 117:9 118:14 119:14,22 120:8 122:14 123:7,13, 14,17,19 124:3 125:15</p> <p>onus 90:6</p> <p>open 3:22 8:20 9:15 53:10 54:16 114:10</p> <p>opening 98:21</p> <p>operate 50:5 51:13 60:12 72:11 87:3 96:6 97:4,7 98:8,9</p> <p>operated 51:25 71:5 86:3</p> <p>operating 19:17 28:2, 16 33:7 38:15 40:12 46:10 70:22 77:8 92:8 97:4</p> <p>operation 6:24 21:8 34:10 35:8 37:5 49:25 61:14</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

operational 70:6 86:23	package 27:19	perform 40:10 43:10 74:1 116:22 118:2	93:22
operations 50:1 51:21 52:15 83:20 98:9	pages 75:20	performed 14:11 18:17 19:15 20:10 40:7,8 48:13 81:9 84:1	play 111:22
operator 52:10,16 57:2 64:7 87:8,23 93:22	paid 123:18	performing 93:23	plays 70:7
operator's 52:7	Paige 2:22 5:4 115:6	performs 34:22 41:23	Plaza 92:17
opportunities 33:24	panel 77:16 78:13,14 79:10,11,13,17,19,20, 23,25 84:2 105:4,5 106:16,17,19,21 112:22	period 47:8 65:7 118:21 120:2	pleased 8:5
opportunity 12:9 18:15 31:1 122:22	paragraph 25:8 63:4	periods 86:4	point 28:20 30:4 50:2 72:9 73:17 75:17 81:3 110:10 117:21 122:5 123:22
Opposed 26:19 51:2 69:4 95:19 113:25	parameters 18:1	person 60:25 66:9	pointed 111:9
opposition 13:15	Pardon 78:4	personnel 4:17 22:5 63:10 71:5 87:6,10	points 122:12
option 25:13 32:20	Parks 4:19	pertains 54:13	policies 22:18
options 25:18 122:23	part 17:22 29:14 41:2,3, 10 68:15 89:4 104:10 110:10 111:23,24 118:5,23	phone 57:14	Polysilicon 3:3,19 7:13 27:4,12
order 3:10 4:9 84:4	participate 4:22 54:12	phones 4:23 57:19	portal 120:9,22 125:2
organization 32:25 99:2 103:16	parties 2:25	phonetically 2:24	position 84:11 85:16 87:16
organizational 60:5 98:24	pass 22:10 56:11 87:24 91:22,23 92:1 98:14	photograph 106:23	positions 52:17
original 73:3 75:7,22	passed 70:18 72:14 111:3	photographed 107:19	possibly 54:13
originally 67:4 70:13 93:21	passing 91:19	physically 60:21 61:25 83:5	post 98:15
outage 22:9,11,23	password 93:7	picture 107:12,24	potable 52:2
outages 17:11 18:4,6, 11 21:17,22 23:14	past 9:2 76:12,13 81:2 119:6 122:20	pictures 107:23 110:7	potential 28:23 54:10
outfits 124:22	Patrick 6:22	piece 29:25 45:24,25 111:6 117:19	potentially 32:7 40:23
outlet 109:14	Paul 6:10 51:19	pieces 33:3,17	pounds 121:12
overlooked 122:15	pay 120:11 123:6,21	pigging 23:17 24:5,13	power 51:24 52:5 60:20 61:13 65:22,25 67:4
oversight 99:5	paying 124:8	pipng 29:10,11 109:15 110:2	practical 97:18
owner 44:16	payment 120:9 124:4	place 4:12,17 76:6 88:8 89:19 90:20 91:1 103:11,16,18 106:19	practice 65:20 66:2
owner-user 2:2 25:14, 16 35:7 44:16 74:25 90:6	PBX 52:6,9 92:5	plan 29:13 48:24 52:4 77:24 78:2 89:16 97:15	practicing 103:19,20
Owner/user 2:4	pending 52:22	planned 17:9 18:18,19 30:6	predominantly 29:19 30:23 37:14
oxygen 67:7	people 4:21 22:10 23:3, 6 60:8 61:10,12 86:24, 25 87:4,15,16 102:13 119:15 120:9 123:14,21	planning 18:5	prefer 76:21
<hr/> P <hr/>	percent 24:19 29:20 42:23 91:19 124:5	plans 28:20	premium 39:20
p.m. 62:19	Perfect 44:14 46:5	plant 29:15 35:3 37:13, 19 41:2,4 51:20 52:15 60:20 61:13 64:22 65:22 67:4 92:12,14,18	prepared 76:23,25
Pacific 70:15	perfectly 80:10 86:15		presence 51:22
			present 16:21 17:4 25:11 27:12 45:11 57:4 96:4,19
			presentation 8:19,23 20:24

presented 28:9 97:1	46:25 50:13 90:13 91:10	putting 73:19 101:11 103:10,20 122:7	32:10 33:11 34:3,11 38:7 46:25 50:12
presenters 4:21			re-circuitized 18:1
presenting 116:8	programs 17:23 37:12	<hr/> Q <hr/>	re-inspections 74:2
presently 90:18,25	project 81:4 117:9,10, 17	qualified 71:6	re-validation 17:20,24
pressure 27:23,25 28:7 30:16 37:22 38:4 70:23 119:6 120:10 121:16,21	promoted 66:4	quality 116:22	reactor 18:13
pressured 50:3	promptly 69:17	quantities 30:3	read 60:7
pressures 38:15 46:10	promulgate 105:1	quarter 15:1	readings 43:15 88:1
pretty 35:25 60:8 77:2, 4	proper 19:4 66:15 84:17 85:19 103:20 110:2	question 21:25 23:13 33:13,22 34:2,14 35:12 40:4 41:9,20 42:8,22 45:20 53:12 54:17 69:1 73:3 80:15 81:2 82:12 87:25 91:3 95:16 99:13 101:24 102:16,24 112:14 113:22 119:5 120:19 121:8,9 123:12 124:25	ready 12:6 83:11
prevent 116:24	properly 48:9 123:23	questions 14:16 15:8 20:18 23:10 24:24 25:19 30:5,8 34:20 49:4 50:9 53:7,8,10 63:15 67:18 68:23 70:6 71:15, 25 77:13 94:7 98:18,21 99:12 112:16 113:5 115:1 118:15 123:1 125:10	real 72:1
previous 53:1 97:25	properties 19:17	quick 27:15 72:1	reason 124:21
primarily 74:24 75:25	proposal 47:4 51:23	quorum 114:20 115:21	reasons 31:1
primary 28:21 76:2,4 97:4 101:4,12,13,22,25 102:25 103:9,10 104:2	proposed 115:22		recall 74:23
printing 52:21	protected 93:7	<hr/> R <hr/>	receive 41:25 58:25
prioritize 45:18	protection 17:21	R-1 23:23	received 10:25 48:3 70:14
proactively 28:23	protocol 64:18 85:8 103:23	radio 78:24	recently 25:5 73:25 76:12
probability 46:3,7,12, 15	protocols 61:7	RAGAGEP 27:18	recess 69:15
problem 65:3	prove 32:9	range 31:9	reciprocate 127:7
procedure 83:22 84:18,19	provide 16:17 49:15 52:1 69:19 90:21 91:5 126:4,22	ranked 19:24	recognized 104:23
procedures 85:25 90:20	provided 2:24	ranking 29:18 30:7	recollection 122:6
process 8:17 19:23 22:13 34:19 40:17 42:16 46:8 66:6,21 72:19 78:22 85:22 91:8 106:7 110:18 111:25 118:6 125:3	proximity 97:16	ranks 45:17	recommend 31:7,14 49:5
processes 116:17	PT 43:12,18	rate 45:25 124:3	recommendation 30:16,22 31:25 38:8 48:18
production 7:11 24:15 37:7	pull 64:19 66:11	rates 22:22	recommendations 30:18 31:20
profile 28:12	pull-down 121:13	RBI 17:25 19:8,22,24 20:4,25 21:7 24:1 25:10,22 26:25 27:5,13	recommended 103:3
program 16:18 17:5,6, 13,21,25 19:2,22,24 20:11,25 21:7 24:1,3 25:11,16,23 26:9,25 27:5,13 31:16 32:10 33:6,11 34:3,11 40:24	pulling 84:1 106:1		reconvening 69:17
	pumps 93:4		record 49:10,12 93:13, 15 102:17 111:18
	purpose 37:16 65:15		recording 16:23 19:5
	push-to-silence 78:15		records 122:18
	Pushing 78:19		recovery 37:4
	put 4:23 11:1 32:3 40:9 68:12 72:8 76:18 81:1 84:17 101:24 102:5,8, 24 103:9,16 105:10,11 106:19 121:2,3,21		red 120:23
	puts 90:6		reduce 116:25
			reevaluate 38:18

reference 56:14	renewal 73:6 75:4,14 76:18 90:16 91:4,13	requires 72:23	113:12 117:24
referring 87:7,9	renewals 74:17	research 100:5	reviewed 10:22 15:18 97:25
refinery 3:2,18 7:7 16:17 17:4,7,8 21:3	repair 74:25	reset 64:10,12,13 81:19,21 82:9,10,18 83:1,10,11,15 84:10,14 101:15 102:4 105:25 106:4,12 107:2,3 113:3	reviewing 72:19
regard 30:10,12 31:12, 15	repairs 20:16 22:24 24:2 37:9,17 41:7	resets 83:9	reviews 17:16 19:3 68:8 117:20
Regional 3:4,5,19,20 6:3,5,11 15:5 51:11,20 67:22 69:21 70:3,9,13 76:24 88:17	replace 23:20 91:25	resetting 82:19	revision 75:13,17,20 76:19,20
register 121:25	replaced 24:11 55:10 66:18	resource 49:6	revisions 75:7,8,14 76:1 94:16
registered 19:20 36:18 37:21 38:10 41:11,12	replacement 30:25	respect 4:20	rewrite 75:22
regularly 42:13	report 3:14,15 7:25 13:25 14:11,12,17 15:6, 8 20:7,21 25:12 48:12, 20 105:24	respective 19:6	Rhone 6:16 41:21 47:12,19,23 48:2 49:15, 18
regulations 90:6	reported 27:21	respond 56:23,25 66:14 102:16	Richard 7:14 27:7 34:22 35:13 39:11 45:9
regulator 121:21	Reporter 2:25 5:2	responding 52:10	risk 19:24 20:5,13 27:17 29:2,17 30:7 45:12,17
reinspected 73:20	reporter's 2:24 16:22	response 9:9 11:7,17, 20,23 12:11 13:10,14, 17,20 14:18 15:9 16:11 24:25 25:20 26:5,15,18, 20,23 50:10,17,23 51:1, 3,6 67:19 68:24 69:3,5 71:18 94:8 95:14,17,20, 23 96:10 113:6,20,24 114:1,4 115:24 124:20 126:9	risk-based 16:18 17:5, 6 21:12 31:12
reinspection 14:25 72:16,25	reporters 12:13	responsibilities 45:6 93:17,19 98:5	risks 30:12
reinspections 74:16	reporting 5:3 123:9	responsibility 81:3 100:12	River 2:5
reissuance 70:9 72:3	reports 23:23 42:1	responsible 84:20 88:22 96:25 98:16 101:14	road 58:6
related 17:12	represent 111:14	rest 74:13	Robinson 5:23 43:25 44:4,7,11,14 45:20 46:5,11,17 112:9,11,12, 16,21,24 113:2 120:16, 17,18 121:7,12,19,23 122:4
relation 52:5	representative 2:2,4, 8,10,13 27:23 28:7 36:23	restart 83:20 84:4,11 107:5	role 45:5 70:7 87:18 91:24
relationship 127:17	request 10:19 70:9,10 71:25 75:22 94:11,14 95:10 96:20 110:11	restarted 81:16 83:4,6, 8,24	roles 91:20 93:17,18
relays 79:22,24 81:10	requested 9:23 15:16	results 8:1 19:6 20:2 27:20	room 59:23 61:16 71:2 81:20,22 82:10 83:1,10 84:3 92:13 97:13 107:4
relevant 117:25	requesting 38:24 51:12 96:5	retraining 90:23	Rosa 4:19
reliability 17:17 21:19	require 14:23,24 35:14 38:5 84:14	return 84:3	rotate 41:4
relief 119:8,10 121:22 122:1,2	required 19:16 22:6 37:6 40:10 81:5 91:18 98:12 104:24 122:3	revalidating 19:16	rotated 37:10 112:18
remote 52:6,9 56:18, 20,21 57:10,18 58:5 59:23 60:13 62:10,14 63:18 64:19 70:25 71:12 78:25 81:16 82:3, 15,18 83:12,14,24 84:10 91:7,13,25 92:3, 4,6,15,23 96:20 97:10, 19 99:3 103:25 105:4, 24 106:3,5 107:1	requirement 32:20 33:8 38:20 50:6 104:11	review 12:6 15:23 17:5 36:25 56:7 68:13 99:6	roughly 30:13
removed 10:5	requirements 22:5 23:21 31:22 32:5 36:15 51:13 72:11,17,22 73:19 85:23 86:21 90:11 97:19 108:3 109:23 119:2,16 122:13 125:24		round 28:4
removing 46:12			rounds 64:25 65:22
renew 25:17			

routine 17:10 19:14	scheduling 19:7 20:3	58:5	significance 28:15 89:19
RT 43:24	Science 10:18,19	sets 99:25	significant 22:4 24:12
rubber 127:11	Scott 6:18 7:10 123:4	severe 36:24	silence 4:23 78:18,25 85:10
rule 32:5 70:17 86:7 88:9 96:7 104:24	screen 120:22	she'll 116:19 122:19	silent 4:24
rules 4:6 5:11 90:5 114:12	screwed 109:15	sheet 7:17 66:5 75:17	similar 31:4
run 24:15 67:1 71:6,10 101:16	search 121:1,3	shell 30:1	simple 105:12
running 39:16 41:6 50:2 103:8	second-shift 93:20	shells 28:12	simulated 106:17
ruptured 122:7,8	secondary 67:25 92:15 101:19,25 102:23,25 104:3	Shields 7:10	simulation 105:10
Ryan 6:14	secretary 2:22 5:5 115:3,5	shift 52:12 60:22 62:3, 15,17,22 63:20 64:5 66:9,15 98:10	sir 22:1,8 23:9,18 45:21 46:21 48:22 54:23 55:17 56:16 57:9,24 58:11,14 59:9,13 61:18 62:8,19 63:1,7,12,23 65:18 67:12,15 73:11 94:1,24 99:9 121:19
<hr/> S <hr/>	section 10:8 85:25 108:15,19	shifts 60:14 66:3 71:7, 10 98:6	sister 35:3
safe 4:17 49:25 89:21 127:20	security 4:17 36:7 71:1,4,12 77:20 88:13, 16 89:2 105:6	ship 70:16	sit 107:20 119:1,14
safeguard 76:5 104:6	select 121:13	shortages 73:22	site 22:17 23:2 29:15 42:6 45:9 52:4 56:24 57:5 60:25 68:9,10 71:12 77:24 78:2 79:11, 12,14 94:12 97:15 107:8 113:9
safely 50:4	selected 28:11	show 32:12 73:4 94:22	sitting 57:22 77:6 101:10
safety 4:15 17:23 65:5, 8,17 69:18 76:2,4 96:4, 16 97:5 99:21 103:21 104:11 109:7,9 121:13	selective 43:7	showed 99:1 105:10	situation 42:24 43:24 82:14 101:11 103:7
sake 64:21 124:3	self-check 99:22	showing 99:2	skin 24:14
Sam 2:15 5:8 7:21 14:1 16:3	semantics 84:6	shows 52:4 73:5 77:16 109:15	slightly 29:13
sample 36:23	send 10:2 15:20 98:24 101:1	shunt 64:1	small 60:8
Sanders 3:5,20 6:3,5 69:21 70:2,8,13,21 71:5 72:9,16 76:24 88:17 89:14 90:9,10 91:4,11	senior 87:11,14 98:1	shut 40:17 61:6 62:4 63:20 64:2 101:14 103:25	smaller 109:13
Sanders' 89:24	sense 32:23 61:22	shut-off 108:23 109:4, 6,7,9	smart 24:5 57:14,19
satisfies 106:22	sensor 61:20	shutdown 57:10,11 62:2 100:24	snow 4:4
satisfy 32:19	sentence 63:4 86:3	shutdowns 80:4	SNT-TC-1A 44:7
scenario 101:17 103:10	September 3:13 10:9 12:2,5,7,21,22 13:2,13, 22 14:13 114:14	shuts 64:8,9	snuffing 61:20
schedule 21:15 27:20 46:24 125:19	serve 88:7 91:20,24	shutting 37:15 61:25 62:5 63:17	Snyder 122:18
scheduled 17:8 18:3,9, 10,21,23,25 30:25 125:12,15	serves 90:13	sick 87:5	software 19:25 27:19
schedules 21:21	service 32:4,9,13,15 40:20,21 47:1 70:5 88:19 98:1,2,3 110:20 121:22 126:17	side 4:19 84:2	sooner 30:21 31:20
	Servos 55:13	sight 65:12	sort 87:19
	set 27:23 57:8,13 58:2 61:23 125:3,22	sign 7:18 9:3,5	
	setpoint 56:18,20,21	sign-off 66:5	
		signal 101:2	
		signed 9:2	

Sounds 77:1	47:14 59:22 60:11	successful 94:12 113:9	107:22 110:6 112:6 127:14
Southeast 21:5	80:11 89:23 90:5	successfully 8:17	talk 76:1 85:14 87:21 102:15 114:18 116:19
space 52:2	110:22 121:25 126:21 127:7	suggest 31:11	talked 120:5 125:7
Spangler 41:22 47:13 49:6	stated 117:6,8 123:15 125:20	summarized 29:4	talking 84:12 85:15 86:16,17 102:13 108:18 109:7
Spangler's 48:7	statements 16:24	Sunset 7:24	tank 97:6,7
spare 37:7 41:3	states 25:3 72:3 88:6 119:23	super 24:22 59:8 66:7, 17	task 12:14 74:14
speak 16:22 31:24	stating 63:3	Superior 97:3 103:5 107:13	Tazewell 96:21
speaking 92:7	station 52:6,9 59:23 62:14 63:18 70:25 71:1, 3,13 77:20 81:16 82:3, 15,18 83:12,15,24 84:10 92:6,15,23 93:2 97:11,12,16,17,20,22 103:25 105:4,6,15,25 106:3,5 107:1,2	supervisor 6:17,23 52:15 99:3	team 87:8,16
special 23:22 125:24	statistically 32:25	Supply 2:5 7:5	teamwork 8:16
specialty 19:15	status 17:5 27:13	supporting 74:19	technician 57:20 61:8, 11 64:5 70:5 88:19
specific 20:12 108:18 115:9	steam 6:19 52:1 109:14 123:5,8,12	supposed 84:20 122:19	technicians 56:23 64:21 65:20 87:11,14, 15 98:1,2,3
spelled 2:24	sterilizers 52:2	surpassed 120:23	technique 24:5
spelling 86:6	sticky 123:22	survived 4:4	techniques 19:5,10,12
spray-type 76:14	Stone 5:3	Swanson 6:4 70:4 93:18 94:2,5	telephone 78:24
staff 23:2,5 71:4 74:13 98:8,13 118:8	Stonecrest 7:3	switch 83:24 85:10	telling 49:7
stage 38:22	stop 84:9 105:25	switchboard 57:10,24 61:5	temperature 24:14 38:15
stages 47:6	stopping 28:20	system 24:8 45:16 53:3 55:16 57:17 76:5 80:3 90:22 92:13 103:18 116:3,15,19,21 117:1, 10 118:5,7,11,20,23 119:9	ten 31:3 33:17 34:7 35:19 41:12,17 42:15, 18,22 43:3,6 48:13,14, 16 75:21
stairwell 97:14	strategic 27:22	systems 66:1 76:6 116:13 117:12 120:6	ten-minute 69:14
stamp 25:17 127:11	strictly 32:16	<hr/> T <hr/>	Tennessee 2:6,8,11, 13,18,20 3:1,17 4:6 6:23 10:11 12:20,25 15:14,21 21:4,13 23:22 25:2,18 27:16 29:1 32:5,14 35:5 36:14,18 38:11 47:15 52:21,22 68:8 90:5 96:21 104:24 110:23 111:16 114:12 127:8
stand 115:5	strips 12:23	table 4:10 16:20,21 18:7,16 29:4,17	Tennova 15:2
standard 44:2 72:25 88:1 100:8	struggled 119:5 121:16	tabled 9:23 10:8	tentative 3:22 114:11
standards 104:23,24	subcommittee 8:8	tables 19:7	term 12:22
standby 85:16	subcontracted 79:14 112:17	takeaway 95:1	Terms 71:8
standpoint 21:9,19 23:18 33:6 86:23 104:12	subcontractor 80:1	takes 125:8 126:11	
star 17:21	submit 15:24 16:2,4	taking 39:18 42:14,19 74:13 85:10 88:1	
start 74:18 83:25	submitted 36:25		
started 73:18 117:18	Subparagraph 25:6		
starting 74:11	substantial 70:11 77:5,10		
starts 40:16			
state 2:18,20 3:1,17 14:3,6 15:14 21:4,12 25:18 35:5,7,19 36:14, 18 38:11 39:13 40:9,18 41:12,22 42:11,12			

<p>territory 121:1,4</p> <p>Terry 2:10 5:18</p> <p>test 62:1 66:11 109:3</p> <p>testing 19:15 52:11 103:21</p> <p>tests 90:8</p> <p>text 60:7</p> <p>thankful 4:3 8:13 127:7</p> <p>thickness 20:1 22:22 24:6 27:22,24 28:5,6, 10,13 29:10,11 32:2 36:23 43:15 45:14</p> <p>thing 12:15,16 35:22 39:10 80:9 84:16 86:15 93:15 104:5 109:4</p> <p>things 39:7 45:18 46:9 47:1 65:6,24 66:25 67:1 73:22 74:25 77:8 80:4 111:3 116:19 118:25 120:7 122:6</p> <p>thinking 34:7 36:7 89:10 98:23</p> <p>thought 8:11 58:22 89:1</p> <p>thousand 35:20</p> <p>three-year 8:12</p> <p>tie 35:25</p> <p>tie-in 80:5</p> <p>tied 92:12</p> <p>time 9:8 12:8 22:12 23:20 24:12 30:25 39:17 40:7,8,12 41:6 42:3,18,23 47:18 48:3, 7,8 52:20 60:19,23 63:25 65:7,21 66:19 68:13 70:16 71:11 72:18 73:18 75:18 81:8 82:19 84:23 89:20 96:19 112:6 115:13 116:8 117:23 118:11 121:2 126:2 127:15</p> <p>time-wise 67:10</p> <p>timeline 118:12 125:22</p> <p>timely 118:2</p>	<p>times 67:11 98:15</p> <p>TMLS 27:25</p> <p>to-do 94:21</p> <p>today 14:22 17:4 27:11 28:4 34:10 51:23 112:2 127:21</p> <p>Tommy 41:22,24 47:13 49:6</p> <p>top 63:9</p> <p>total 14:5,7 29:12 33:2</p> <p>totally 89:6 96:25</p> <p>Toth 5:25 9:18,20,22 10:1 43:9,13,16,21 69:23,25 72:2,6 73:7, 10,16 74:6,9,21 75:5,9, 16,25 76:9,21 77:4,18, 23 78:3,5,8,12,16,21 79:4,7,13,18,24 80:7, 18,22,25 81:8,14,17,21, 25 82:4,7,11,22,24 83:7,13,16,19 84:7 85:12,18 86:1,6,11,14 87:1,7,13 88:15,21 89:3,8,11,17 90:1,4,14, 17,24 91:3,17,23 92:7, 24 93:6,11,14 94:18,23 95:5 96:1,13 98:24 99:4,9,18 100:3,7,19,22 101:5,8,10,18,21 102:1, 9,14,18,19 103:1,7 104:4,8,13,16 105:7,17 106:7,11,14,20 107:6, 15,19 108:1,5,9,12,16, 20,24 109:6,10,16,20, 24 110:1,17 112:3,20, 23 113:1,3 114:7 123:25 124:1,2,10,14, 18,21 125:6</p> <p>Toyota 7:10</p> <p>track 12:19 45:17 89:6 118:4</p> <p>train 37:7,8 40:15,18 41:3,6 50:2 66:2 84:18 108:14,22 109:1,5</p> <p>trained 87:16 88:2 100:15 112:18</p> <p>training 6:1 15:6 63:3 66:6 85:19,20 87:22,23 88:12 90:12,20,21,22</p>	<p>91:4,5,6,10,14,15 98:13</p> <p>trains 37:4,5,6,16 38:12,17 40:12 41:4,5</p> <p>transcribed 12:14,16</p> <p>transfer 124:23</p> <p>transition 120:2</p> <p>travel 115:13 127:20,21</p> <p>Travelers 104:18</p> <p>treat 124:16</p> <p>treated 92:24</p> <p>treating 70:10 76:22</p> <p>tri-annual 73:20 74:16, 23</p> <p>trim 54:22,24 55:14 67:7 76:7</p> <p>trip 12:24 85:21 101:1 102:23 115:17</p> <p>tripping 101:15 102:3</p> <p>troubleshooting 100:13</p> <p>true 40:22 85:17 117:21</p> <p>tube 24:7,14 30:1</p> <p>tubes 23:20 24:11,16</p> <p>turn 13:25 14:20 16:25 30:4</p> <p>turnaround 21:21 22:19</p> <p>turnarounds 23:5</p> <p>turns 64:11 120:23</p> <p>tweak 66:25</p> <p>twelves 60:15,16</p> <p>two-month 118:20</p> <p>two-system 66:13</p> <p>two-year 32:21 33:7 40:16 46:24</p> <p>twofold 32:7</p> <p>type 28:1 31:12,15</p> <p>types 104:7</p> <p>typically 8:12 9:1 37:5, 9</p>	<p style="text-align: center;">U</p> <hr/> <p>UG140 121:18</p> <p>UG140A 122:3</p> <p>Uh-huh 78:16 83:2 109:16</p> <p>uh-oh 22:23</p> <p>UL 80:5,13,16,21 81:11</p> <p>UL-LISTED 79:17,19, 20</p> <p>ultrasonic 43:15</p> <p>unable 10:12</p> <p>Uncorrected 14:10</p> <p>undergo 18:13</p> <p>undermanning 87:19</p> <p>understand 10:23 12:20 36:2 58:6 65:15 80:7 84:8 86:8 89:18 103:13</p> <p>understanding 55:3 94:19 104:12 107:1 119:12 123:10</p> <p>understands 103:14</p> <p>understood 43:4 89:15</p> <p>underwent 17:13,19</p> <p>unfired 37:21 119:6 121:16</p> <p>unhackable 93:10,11</p> <p>unit 7:23 16:2 17:15,25 32:11 39:15,20 80:9 94:12 111:16 113:10 114:18 119:14 125:12 127:2</p> <p>units 17:25 18:13 22:13 93:4 116:23 117:16 119:7,10 121:10</p> <p>University 3:1,17 6:23 15:15</p> <p>unplanned 23:14 24:2</p> <p>update 15:22 16:18 27:5,15 29:1 47:5 48:20 49:1 67:3 69:19 94:22</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

116:3	69:5 71:18 94:8 95:14, 20,23 96:10 113:6,20 114:1,4 115:24 124:20 126:9	waiting 71:2 120:12	103:12 116:11 117:8,16 118:8 120:6
updated 18:2 53:3 67:8 98:24		Wanda 6:11	works 60:24 61:10 69:8
updates 68:16 126:4	versus 21:17 72:13,24	wanted 45:4 67:3 83:5 106:25 110:13 111:18 112:6 121:1,2	worst 42:24
upgraded 53:2 67:6	vessel 28:8 48:9 49:25 121:22	wanting 73:9	worst-case 42:24
usual 78:22	vessels 14:6 27:24,25 28:7,11,19 29:11 30:17 35:13,18,19,20 36:4,10, 17 37:22 38:5,11 39:12 40:4,18,22 41:13 42:2 43:10 47:17,22 48:8 49:20 119:6 120:11 121:17	water 52:2 97:6,7 101:7	wrap 46:23
UT 10:17,19 22:21 43:17		waters 100:18	WRC 116:7
utilized 42:17		watertube 70:24	writing 12:15
		ways 61:23	written 90:5
<hr/> V <hr/>		weather 10:10	wrong 65:25
vacate 97:23	VI 3:15	Wednesday 3:24 114:13,14,15	wrote 124:8
Valero 3:2,18 7:7 16:17 17:3,7,20	vibrate 4:24	week 42:5 48:1 52:1 66:9 88:19 97:8 117:14	<hr/> X <hr/>
Valero's 25:22	VII 3:16	weekends 71:9	X-RAY 44:11
valid 50:4 104:20 111:9	VIII 3:18	weekly 42:1,5 47:16	XI 3:25
validate 34:4	violations 14:9,10 118:4	weeks 47:17 66:9	<hr/> Y <hr/>
validating 34:11	visibility 92:14	well-advised 39:15	Yarborough 104:16
valuable 21:8	visibly 93:2	whoa 102:12 127:11	year 9:4 18:19,25 20:10,13 23:4,15 25:12 29:5 49:9 61:1 66:20 76:12,13 127:19
valve 109:7,9	visit 47:20,22 68:9,11 94:12 113:9	wife 6:11	years 8:10 21:18 22:21 25:17 30:19 32:6 34:7, 10 37:1 38:6,7 39:1 40:24 45:9 47:11 93:19 111:6 116:12 119:22 120:1 125:7
valves 121:14	visitors 23:11	window 22:15	Yeary 6:8 96:17
variance 3:15 10:18 14:11 15:2,6,8 51:12,24 52:9 53:1,4 65:16,19 67:3,5,8,13,21 69:10,19 70:14 71:25 72:11 73:5, 13 74:5 75:22 76:10,20, 23 77:9 86:17,21 88:8 89:6 94:10,11,14,22 95:10 96:5,20 97:1,25 104:10 110:11 111:22, 24 113:8,12,14 114:6	visual 19:11 20:1	wing 77:20 78:3,6	yesterday 99:6
variances 14:23 25:9 73:20 74:2,11	volumetric 24:6 43:13	wired 79:15 100:21	you-all 8:14 68:17 69:16 115:7 126:18,22, 24 127:4,14,18
vast 116:10	voluntary 17:21	wishes 118:9	
vein 62:10	vote 8:9 9:13 54:10	withdrawal 124:11,13	
vendor 119:2 123:14 125:13	voted 12:6,8 114:16	withing 93:3	
verbal 9:9 11:7,17,23 12:11 13:10,17,20 14:18 15:9 24:25 25:20 26:5,15,20,23 50:10,17, 23 51:3,6 67:19 68:24	votes 13:16	wonderful 125:6	
	voting 11:22 13:19 26:22 51:5 69:7 95:22 114:3	wondering 71:14 99:24	
	<hr/> W <hr/>	wording 83:3	
	Wacker 3:3,19 7:8,12, 14 27:4,7,9,12,21 32:1, 19 34:19 38:23 41:24 45:9 46:23 49:20 50:12	words 35:17 42:18 84:17	
	wait 102:22	work 18:18 22:17 25:13 38:10,16 45:10 65:21 66:8,20 101:20 119:13 121:1 123:16	
		Workforce 6:21	
		working 22:10 45:8 64:6,23 65:1 67:2	